EVIDENCE TO BE READ AT THE TRIAL OF THE KNAVE OF HEARTS:

Report on the Controversial USAOG $20 Coins (PF Hoard) to the Garland-Ryan Arbitration Panel, 1967

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1. The present report is being undertaken as amicus curiae in the Garland-Ryan v. J.J.Ford et al dispute. It is intended for presentation at the meeting of the arbitration panel scheduled for the Miami, FLorida, ANA Convention, August 1967, or should that prove impossible, then for presentation, in person or in absentia by proxy, at some subsequent meeting of the said panel as for example at the October 1967 PNG meeting. Evidence hereinafter to be presented is relevant to any decision of the said panel and should constitute part of any subsequent amicus curiae brief to be filed on behalf of the undersigned personally or by proxy, in the event that this dispute should reach the courts. Objections of irrelevance should be held in abeyance as material relevance will be demonstrated for all findings herein cited, described, or alluded to.

2. Since Eric P. Newman found it appropriate in his initial statement, "An Inquiry into the Authenticity of a Hoard of $20 USAOG Pieces," hereinafter called Inquiry, to state his qualifications as an expert on the USAOG issues and related matters, and since it appears that the said qualifications may be at issue should the said Garland-Ryan v. Ford et al dispute come to trial, it seems appropriate for me also to submit my own qualifications as an expert on these same matters. I have been professionally engaged in researching American coins and writing about them for 16½ years. My first publication on coins appeared in the

(Voir Dire)

December 1950 Numismatist. Early in 1951 I spent some months at the National Archives, Washington, D.C., researching the early records of the United States Mints, and returning there in 1952 and 1953, during which time I examined over 100,000 documents including many having to do with the United States Assay Office of Gold (USAOG). During 1951 I assisted the then editor of The Numismatist, Stuart Mosher, being in fact (though not on the masthead) assistant editor. During a brief position (1951) with the Museum of the American Numismatic Society I recatalogued the Society's collection of Mexican hacienda tokens and prepared the Index to American Auction Catalogues. During the period 25 June 1951--10 June 1952 I attended Johns Hopkins University, majoring in Humanities with strong emphasis on classical studies including archaeology, graduating on the latter date B.A. with Phi Beta Kappa. I was trained in technical numismatic matters 1951-56 by the aforesaid Stuart Mosher and by the late Wayte Raymond, publisher of Coin Collector's Journal and of the Standard Catalogue of U.S.Coins, and sponsor of my Archives research, the intention being to achieve proficiency in both the historical and the technical, procedural or methodological aspects, viz. minting techniques old and new. The earliest result of this training was my 1951 Numismatist article "How Our Coinage Became Mechanized," which has been reprinted in Selections from The Numismatist. Between 1952 and 1960 I prepared over fifty auction catalogues, mail-bid sales and fixed-price offerings for various dealers, principally New Netherlands Coin Co., attempting to apply scientific methods originally developed for classical Greek numismatics to the study of American coins and others of recent centuries. Byproducts of this effort and of my intensive study of various institutional collections (Johns Hopkins University, Omaha City Library, N.J. Historical Society, Penna. Historical Society, Mass. Historical Society,

American Numismatic Society, Smithsonian Institution, Louis Eliasberg Foundation, among others) were over4,000,000 words in print between then and now: six monographs for Coin Collector's Journal, four monographs on varieties of U.S. gold coins for Hewitt Bros., with two others accepted for publication, numerous articles in The Numismatist until economic considerations forced me to shift to paying markets, hundreds of articles (some of them of booklength serial form) in every major numismatic publication and most of the minor ones. In 1952 my articles on American coin hoards won a Heath Literary Award from the ANA; so far as I know I was the youngest person ever to win one. In 1958 I wrote an article for the Encyclopedia Britannica which now appears as part of the larger entry NUMISMATICS--U.S. in editions since 1965, signed W.H.BR.; my vita is in volume one. From 1953 to date I have been associate or research editor of the said Standard Catalogue of U.S.Coins, and since the mid fifties I have also been one of the panel of consultants for the Guidebook (Whitman Publishing Co.), these being acknowledged standard references. Since 1947, and more intensively since 1951, I have collaborated with Dr. J.Hewitt Judd on the book which later saw print as U.S.Pattern, Experimental and Trial Pieces (also Whitman); I extensively revised it for its present 3rd edition, incorporating improvements which I had been vainly trying to get Dr. Judd's consent to include since 1953. I was co-author with Dr. W.H.Sheldon on Penny Whimsy (Harpers, 1958). During 1963-65 I ran the column "Bristles and Barbs" for Coin World; it now appears in Coins Magazine, and many installments have dealt with problems in minting techniques and counterfeit detection. The basic principle is that counterfeiters' imitations are detectable because made by techniques differing from those that had produced the genuine coins. My serial "The Proofing Process" (Whitman

Numismatic Journal, 1965) it is the first part of a book, working title COINER'S CAVIAR, accepted for publication 1967, dealing with proof coinages from the 1660's to the present day, and with their manufacturing techniques--a fact of obvious relevance. In 1964 I also sold the same publisher a book, working title FUNNY MONEY: OR, 'THE MINT MAKES NO MISTAKES'--A STUDY IN INFALLIBILITY, dealing with mint error coins as evidence of failure of individual subroutines in the three basic minting processes: manufacture of dies, manufacture of planchets, and stamping the dies onto the planchets to make the latter into finished coins. This book is supposedly now in press. It is partly amplified from my booklet Dies and Coinage, now in print as part of Hewitt's Numismatic Education Series. In 1963 with Don Taxay and others I set up the Institute of Numismatic Authenticators with two purposes: (1) to systematize procedures for deciding whether disputed coins were genuine or false, and (2) to train others in authentication techniques. The final examination given candidates by the Institute is partly theoretical, partly practical; it deals with minting techniques and counterfeit detection, and its passing grade mf is 100%, as incompetence in authentication cannot be tolerated. Both Taxay and I had been independently authenticating coins for some years before, and Taxay's own activities resulted in his best-selling book COUNTERFEIT, MISSTRUCK AND UNOFFICIAL U.S.COINS (Arco, 1963) to which book I had contributed considerable data. I have lectured to coin clubs in all areas of the USA save only the Pacific Northwest and parts of the Deep South, to date, many of these lectures having been subsequently printed; the lectures and the (often much longer) question periods following them often deal with counterfeit detection. I was one of the principal contributors to the Newman-Bressett book THE FANTASTIC 1804 DOLLAR (Whitman, 1962), though my 1951 discovery

that the Smithsonian's plain edged "1804" dollar restrike was overstruck on a cut-down 1857 Berne (Switzerland) Schützentaler was not credited to me, nor was my discovery of the die deterioration on the reverse of the original (1834/35) "1804", manifested on the proof restrikes of 1801-2-3 dollars--a fact weakening the presentation of evidence made by Eric Newman in that book. In 1964/65 I set up, with Arthur M. Kagin, the curriculum in numismatics of Roosevelt University, Chicago, resulting in a lecture course by various acknowledged experts and others, and resulting in the announcement of a program leading to a degree in numismatics. Since then I have completed many other writings, some accepted for publication, others awaiting decision on publication, together with two training courses (in mint error identification and in coin grading) for the American Error Association and the U.S.Numismatic Association. Since 1961 I have been repeatedly consulted by the U.S.Treasury Department as an expert on identifying allegedly counterfeit coins on both coasts and in identifying stolen coins in New York City; my activities on behalf of the Treasury Dept. have resulted in material aid in uncovering several coin robbers and numerous makers and distributors of counterfeit, falsely altered or otherwise fraudulent coins. My reference and principal contact in these matters is Douglas Duncan, head of the San Francisco/Oakland offices of the Secret Service. In summary, for nearly two decades I have been publicly identified with numismatic education and specifically with dissemination of information about minting technology and counterfeit detection.

3. At the 1966 Chicago ANA Convention I was asked to participate in the hearing of the aforesaid Garland-Ryan arbitration panel in adjudication of genuineness or falsity of the coin numbered in the accompanying tabulation V-2 or EPN*5. I then had no opportunity to ask questions or to make a definitive judgment, but

I heard Newman's Inquiry and was able to conclude on the basis of my own knowledge of minting technology that Newman's conclusions in the Inquiry were unfounded, unwarrantable, misleading and in some instances contrary to fact, based on misunderstanding or misinterpretation of minting techniques known to have been used for making dies for USAOG coins. Detailed analysis of the Inquiry is included later in this report, based on detailed study of this document together with photographic enlargements made on behalf of Newman, and not deriving from subsequent researches. Newman's specialties include Colonial coinages and Colonial paper money; aside from the book on the 1804 dollar, there is no evidence that he has specialized extensively in the history of 19th century minting technology (nor would such study have been of great relevance to the conclusions reached in that book, fortunately). Expert knowledge on this specialty (19th century minting technology) can be found in few places: (a) my aforesaid booklet DIES AND COINAGE, (b) Sir John Craig's THE MINT, Cambridge 1953, (c) C.Wilson Peck, CATALOGUE OF BRITISH COPPER, BRONZE AND TIN COINS IN THE BRITISH MUSEUM, (d) Taxay, COUNTERFEIT, MISSTRUCK & UNOFFICIAL U.S.COINS, (e) Taxay, U.S.MINT & COINAGE, Arco 1966. A later section of the present report re-examines the available data and arrives at conclusions based on expert knowledge of 19th century minting technology, materially at variance with those arrived at by Newman.

4. At issue is the genuineness or falsity of the aforementioned coin V-2 or EPN*5. Paul Garland and associates, represented officially by counsel and by Eric Newman as technical consultant, but in reality at the 1966 ANA Convention panel hearing aforesaid represented by Eric Newman as de facto prosecuting attorney, claim falsity, seek redress in the amount of the cost of the coin, and attempt to discredit all concerned with it, per Newman's

line of cross-examination recorded on tape at the said hearing. Should this matter come to court, the said tapes should be subjected to subpoena duces tecum as material evidence. The opponents, John J. Ford Jr. and Paul Franklin, not then represented by counsel, claim genuineness and seek to retain the purchase price and to quash verbal attacks on the coins in question, and on any similar "Humbert Associate Source" coins. The referral to the said arbitration panel became necessary after one of the dealers who had handled the said V-2 in bona fides in full belief of its genuineness (Michael R. Kolman, ofCleveland, Ohio) refused to refund thepurchase price even after refund had been agreed to by all other parties concerned in order to estop legal action and/or extremely troublesome and difficult adjudication.

5. Decision of genuineness or falsity of the said V-2 or EPN*5 depends on, and is in turn decisive of, genuineness or falsity of all the other several dozen coins and ingots marked * in the accompanying tabulation. Evidence relevant to any one of them is material to conclusions about the rest. Decision of genuineness of the said V-2 in isolation from the rest is impossible, and the lines of argument to be adopted here are based on this finding. This point must be stipulated as acceptable at the outset, otherwise no decision whatever as to genuineness can be reached. Considerations of fabric alone out of context lead to disputable conclusions. Considerations of source along lead to no reliable conclusion whatever.

6. Newman has adduced as grounds for suspicion of all * or "Humbert Associate Source" (hereinafter HAS) coins the circumstance that all now known have supposedly been traced to Paul Franklin in 1957-58. Further grounds for suspicion may be found in the text of the New Netherlands advertisements (inside front cover of The

Numismatist, various issues 1957-58, and separately printed flyers of similar text during the same period) headed WESTERN NUMISMATIC AMERICANA. These advertisements speak of a "system of unearthing numerous unique pieces not previously known..." It could be claimed by Newman that this represents grounds for suspecting use of a forger's services. I can testify under oath, should it ever come to court, that I was associated with New Netherlands Coin Co. at the time (1952-60 inclusive), and that I personally knew the said "system" to consist of circularizing and personally contacting banks, bullion dealers, newspapers, and various other establishments in numerous towns in California, Nevada, Idaho, Colorado, Wyoming, and elsewhere--specifically those towns where minting or assaying activities had been on record as going on during the mid 19th century. Personal contacts were principally made by Paul Franklin. Naturally enough, the monetary offers stimulated memories and brought to light many assay bars and some coins, among the more spectacular items so located being the ingots of Blake & Agnell, James King of William & Co., Anonymous 1849, Argienti & Co., and others. I was present when these things were brought or sent into the New Netherlands offices. At the time no question arose as to genuineness, though I was asked on numerous occasions to evaluate gold fabric, lettering style (for probable time of origin), and weight as against declared bullion value, for consistency as confirmatory evidence of genuineness. I saw some, though not all, of the HAS pieces at the time. The question of falsity did not then arise, though the peculiar markings on some ingots gave rise to various unanswered questions--a circumstance resulting in my reluctance to handle some of them. (I can now account for all these and do so in the subjoined catalogue.) The story given by Franklin and Ford about the HAS items is that they were recovered from a descendant of an employee

PF evidently deceived all concerned on this score but does not affect the arguments from technical considerations.

of USAOG, some via his banker, others directly from him once introductions had been made. I have recently learned this man's name. Refusal 1957-66 to name the indifidual was understandable to any coin dealer, in view of fear that other coinm dealers would search him out and molest him with offers and demands until nothing more would be forthcoming. Revelation of the name at any arbitration panel hearing is likely to produce the same result. I am under obligation not to reveal the name except under court order. Should it be revealed within the next few months, the result is predictable. Should a piefort octagonal $100 ingot (Augustus Humbert, 1851) appear on the market in a year or two, we shall know who got to the "Humbert Associate Source" first, as this is one of the pieces known to be retained by this man. Pedigree evidence is therefore not usable in either direction, as the above story is at present not subject to direct confirmation.

7. The linen handkerchief story given by Franklin and brought out by Newman's questioning at the 1966 arbitration panel hearing is also unusable as supporting evidence, as the said handkerchiefs could have been marked with weights and percentage compositions at any time. I have learned the results of nondestructive (X-ray) analyses performed of three * coins of the original seven from which group V-2 or EPN*5 (the Garland coin at issue) had come, the said analyses being performed by the Boston Museum of Fine Arts in support of Ford's claims anent the handkerchief story. As these three coins do differ systematically in alloy components, they tend to substantiate the story, but neither these analyses nor the story itself can be sufficient in themselves to establish genuineness or falsity of the V-2 or any other piece in the * group. Decisions as to genuineness or falsity must be made on grounds of fabric of coins and of diemaking techniques which must have produced

In either direction. Hence irrelevant

the dies from which the * coins and ingots were created.

8. It is necessarily stipulated that the * coins and ingots are struck from dies, and not cast or molded. This is admitted implicitly by the line of reasoning adopted by Newman in his Inquiry, and will be granted by any expert on examination of any of the * pieces. Had they been casts, the * coins would have been identified as such long before--or at worst, they would have been cited as casts in Newman's Inquiry.

9. This being granted, namely that the HAS coins and ingots are struck from dies, the following possibilities and no others exist:

a. They are genuine, made at USAOG, San Francisco, 1853.

b. Some * items are later productions of the Philadelphia Mint.

c. Some * items were made in later years from genuine dies, puncheons, and letter punches, by or on behalf of private parties unknown (though conjecturable).

d. Some * items were made in later years from hubbed or transfer dies fabricated from normal genuine coins. "Some" in a,b,c,d above may mean one, several or all.

We can exclude at once on technical grounds de novo manufacture of copy dies in absence of original prototypes--a fact stipulated by Eric Newman in Inquiry when he spoke of casting dies from which hubs could be created for manufacture of copy dies. When we reach the question of the target obverses (including those represented on the lead trial pieces EPN 20-25) the issue arises of the source of the alphabets used to make the dies de novo, as they are not copies of any known genuine prototype. I shall adopt the line of reasoning that from the said alphabets and puncheons we can reconstruct a list of the equipment which must have been in the possession of whoever made the HAS items. This is a recognized prodedure, akin to that involved in the well known claims that the coiners of Athenian tetradrachms must have had access to rudimentary head puncheons at some time. I shall also require that it be stipulated that die-

linkage is evidence of common origin for items so classified. This means that if two coins or ingots are found to share one or more working dies in common, either the same men made both or else the dies in question were preserved and transferred from the one maker to the other. This is also a generally recognized principle in numismatics and requires no defense here. But the question of recognizing an individual working die is in question here, and my arguments hereinafter necessarily depend on the fact, unperceived by Eric Newman, that almost indistinguishable working dies could be wholly hubbed, and therefore that the entire mintage of several million (2½ million) USAOG $20 gold pieces did not necessarily come from one and the same pair of working dies. Relevance and competence will be shown hereinafter.

10. In the following sections I shall begin by analyzing the Newman Inquiry and rebutting its conclusions where I find them unconvincing, misleading, or contrary to fact. I shall then proceed, on the basis of analysis of some sixty-five * items and others related to them, to reconstruct what is, to the best of my knowledge and belief as an expert in this field, is a true and accurate account of how, when, where, why and by whom these * pieces were made. Rebuttal of Newman's Inquiry should have been enough in itself to destroy the doubts raised in the minds of collectors, dealers and members of the arbitration panel as to genuineness. However, such rebuttal is insufficient to permit adjudication of genuineness or falsity of the coins, and I would not myself issue any certificate of authenticity on such negative evidence alone. That would necessitate the additional step of showing that the rebutted material included mention of every other possible technique for manufacturing counterfeits of the same general kind as the coins under question, and such mention is not

made nor claimed. Positive evidence has to be presented for genuineness. Such evidence was not available until now.

11. I now proceed to the detailed analysis of the Inquiry. It is possible that this analysis may overlap with one made by J.J.Ford, which statement I have not seen at the present writing. The reason is that in order to complete the analysis, as well as the necessary study of all * items, I had to spend time with Ford, examining everything, discussing the coins and hearing what he had to say. To the best of my knowledge and belief he was leveling with me. This fact has been taken into account, but once again source information and collateral data, though they may confirm, cannot override technical conclusions derived from considerations of fabric and die work. Conclusions reached independently by me and Ford were communicated to each other, as I am not now and have not been at any time under any oath of secrecy concerning my investigations as amicus curiae. This is a fact-finding inquiry, not a murder trial, and the methods of the latter are not appropriate to the former.

12. Page citations to follow will be from the Inquiry and panelists are requested to consult their copies. On p. 4, Newman made much to-do about the * coins having been advertised as proofs. It must be stipulated at once that origin, description, or manner of advertising are not relevant to decision as to genuineness of any coins; such decision necessarily depends on considerations of fabric and die work, not on words about the coins. Should the coins be established as genuine, then and only then can we proceed to consideration of whether they were not intentional brilliant proofs. Should that question be reached by this panel, settlement thereof can be made only by comparison of the * coins with brilliant non-* proofs known to have been made by USAOG (such coins now being preserved in Johns Hopkins University and elsewhere), not with the Seavey-Ulex-Proskey-Newcomer-Green-Farouk-Kosoff proof EPN-12 which is almost

certainly a Philadelphia Mint product. (The USAOG engraving department was not in the habit of such drastic die lapping as this curious piece's reverse die had suffered.) The dies were in Phila. Mint 1912 as recorded by E.H. Adams!

13. For much the same reasons we may dismiss from further consideration Newman's reference, page 5, to the 1966 GUIDEBOOK caveat. This reference begs the question of falsity as well as of identifying the * pieces with any putative forgeries. Are coins automatically presumed guilty of being counterfeit until proved innocent, or vice versa? If the former, on what basis? Gentlemen, this way leads to panic paranoia and to suspecting one's pocket change of being counterfeit. A guilty verdict against an individual would not be admissible by such procedures in a court of law.

14. Again on page 5, Newman cites an opinion of the General Counsel of the Treasury Department that USAOG coins "were not obligations of the U.S.Government." I am prepared to show that the peculiar status of USAOG entailed its recognition as a branch mint operating under unorthodox conditions, regularized and transferred to full official control only as soon as McCulloh's new zinc process for parting gold from silver could be put into operation, requiring smaller quantities of the impossibly difficult and dangerous parting acids. In the meantime, should the coins be adjudicated as false, their makers would be liable to prosecution for counterfeiting coins of the USA.

15. On page 6, Newman claims that coins EPN*5; *7, *14, *16 have artificially produced proof surfaces made after striking. Examination under strong magnification fails to bear out this claim. Relief details show no buffing marks. And if they did, would it not have been easy for other owners to recognize the fact and reject the coins as buffed after striking? And if the intent merely to produce pseudo proofs, why not merely buff genuine coins? For what conceivable purpose would ordinary production-type pieces have

been fabricated by the extremely elaborate means Newman describes--and then buffed to make them look like proofs? Whoever made these pieces knew enough to burnish blanks and dies, as microscopic examination reveals. Newman can't have it both ways.

16. On page 6 is an error of fact which destroys the validity of all conclusions thereafter reached by Newman. He describes the rice shaped lump under r. arm of T in UNITED as a feature of one and only one working die, all other dies showing it therefore being falsely fabricated copy dies. In fact, Newman's whole presentation from there on is based on his belief that only one working reverse die was used to make several million USAOG twenties, and that the said chip at T and the various stages of reverse cracks represent progressive failure of that one working die, anomalies in the * coins thus being supposedly evidence of the use of copy dies. I shall show that Newman's entire argument against the * coins hinges on that one assumption and that the assumption itself is false. For now, consider the following: (a) Trialpieces exist of three different matrices, showing center dot and guide lines. These have letters identically placed (even including double punching on 53) to those on the reverses of all regular and * USAOG twenties. The production of matrices would have been a meaningless procedure unless with the intent of raising from them several working hubs from which hundreds of working dies might be sunk. The known trials of matrices are not * items. (b) The reverse of EPN 12 (not a * coin) cannot be from the working die used for any of the regular USAOG $20's so far examined. It shares the peculiarities of * and non-* twenties alike save for the reverse breaks, but it shows incomplete letters due to drastic lapping of the die, and in other respects manifests itself as an impression of a working die provably different from any of the dozen or so reverses found on USAOG twenties unquestioned as to genuineness. Proof that there were

in fact many working dies for regular USAOG twenties is found in the subjoined catalogue. (c) Some coins of groups II (884 THOUS.) and IV (900/880 THOUS., no rev. breaks) have a die crack from frame to right border, r. of Y. Coins of groups VII, VIII, IX (all *) and X (not *), show a crack in denticles at 3:30 on reverse, but no trace of the crack of the II and IV coins above mentioned; and they also show two different states of the so-called "circumferential" breaks at left and right. This is a mutually exclusive circumstance; the same working die, cracked on coins of groups II and IV, could not have suddenly become uncracked, then cracked in a different place for groups VII through X. Leaving aside any other considerations, these three establish the use of different working dies. As the same letter peculiarities recur on all these, the use of hubbed dies is evident. In differentiating reverses, therefore, we have to look for peculiarities of individual dies (imparted by different amounts of hand retouching, lapping, rusting or chipping) as distinct from peculiarities originating in the hub. What is found only once is presumably from an individual working die; what is common to many demonstrably different dies is from the hub. It remains to be seen whether the "circumferential" breaks are in the working dies. Newman believes that they are. I am prepared to show that they are not, and to differentiate among various working dies all having the breaks at right. The subjoined catalogue enables differentiation of some 15 or more working dies (non-*). Most of these (including all non-*) show the chip at T of UNITED, though the matrices do not; a minority of them show some traces of the "circumferential" breaks at right and left. The best interpretation of the data involves a minimum of four, mostlikely five, working hubs made from a single matrix which had begun to crack up in the press where it was being used to raise the

hubs. Of this more in the subjoined catalogue.

17. Still on page 6, Newman alludes to the diagonal die scratch in field just r. of final A in AMERICA, as something distinctive to the * pieces. If it is in fact a scratch on the working die, it means only that the * coins shared one and the same working die; it is not evidence as to genuineness or falsity, and it will not be found on impressions of other working dies. However, Ford's enlarged photograph of the Kosoff proof (EPN 12, USAOG 123) shows what looks like the identical die scratch. The obverse of that coin is drastically lapped, like the reverse, and unlike other obverses * or non-*. If this mark at final A proves to be identical, then the scratch must have occurred not on either working die but on the matrix at a very late stage; its occurrence on regular Group X twenties andothers would have been likely obscured by cold flow and/or mint abrasions and bag marks. Even if it does not prove to be identical on the * obverse(s) and that of the proof, this point would not affect the line of reasoning I am adopting here.

18. On page 7 Eric makes much about a dent on I of UNITED found on * coins, saying that "this dent is not found on other coins," and using it and a similar dent on frame below F on reverse as evidence that a nicked coin was used as a prototype for falsely hubbed or transferred or cast reverses. This is a fundamental error, invalidating all his subsequent conclusions. A hub is in relief like a coin. A depressed dent could have been inflicted on a hub, in which case the working dies sunk from the hub would show it in relief, and the coins struck from those working dies in turn would show it as depressed. Variation in the depth of the dent would reflect either variable force used in sinking the working dies or in striking the coins, or in some cases retooling of the working dies to minimize such injuries. Instances of such dents to hubs are known on various United States coins. All half cents 1840-57 are

struck from working dies whose dates had been imparted by hand but whose other areas had been sunk from a single obv. and a single rev. hub. Before the single obverse die was made for 1841 the hub recemived a dent on hair below ear, wedge-shaped. All half cent obverses 1841-57 show this identical dent (save that on the 1854 die it is corrected with fine hair engraved by hand in the working die). Before the first small berry reverse die was made for 1849 the reverse hub received two small cuts in upper wreath above HALF, and these cuts show on all subsequent reverses. The half dimes with drapery, 1840-58, are all from obverse dies made from a single obv. hub. Chips out of the matrix from which this hub had been made resulted in raised marks on the hub between the stars. Some of these were partly effaced on some working dies and show smaller or more faintly on the coins struck therefrom. Valentine's monographm on U.S. half dimes (ANS, Numismatic Notes and Monographs #18, 1931) points out that in early 1857 the hub, after having manufactured several hundred working dies, had becomme badly worn and was retooled. Working dies made from this hub aftemr retouching differ in hand finishing details as usual, but drapery is more distinct and allm coins struck from these working dies now show a m depressed dent on third star. As the dent is incuse or depressed on the coins, it must have been in relief on the dies, therefore depressed on the hub. Evidence of the same kind is relevant concerning m the frame dent mm below F on rev. of the * twenties and on I of UNITED. All we need for showing that different working dies are involved, sharing a common origin in the same hub, is to demonstrate presence of the identical dents on mmmm coins struck= from such different m dies. We can do bettem than that: we can show that the same dents are found on * coins and on some, though not all, non-* coins, and that on others there is evidence of their

attempted repair or obliteration by hand on the working dies. I cite in evidence X-1 (USAOG 107), photo from Smithsonian negatives 102a-b, showing both the dent on I and the dent at frame under F; it did not come from HAS and was obtained many years before as a regular USAOG twenty. It has plenty of nicks and dents of its own, which are not found elsewhere, especially not on the HAS coins, therefore it was not the prototype of the latter, even were one to assume for the moment that any HAS coins had been so made; for the Smithsonian Institution does not allow its coins to be sent out to machine shops. I cite also in evidence X-2, USAOG 126, a twenty of Group X picked out at random from Stack's stock, which shows the frame dent below F but the dent on I has been effaced. X-3, USAOG 130, shows the same frame dent but no dent at I, and there are die cracks on reverse, e.g. from 5 to frame, not found elsewhere. The two Kagin coins, X-5 and X-6, EPN 17 and 18, show weaker traces of frame dent--a fact remainming unnoticed by Newman. The dent on I of UNITED occurs not only on the obverse of all * twenties of regular design (groups V, VII, VIII, IX), but also on the two 50 D obverses (regular and with recut zero) of them same design, and on the other twenty-size obverse without denomination below eagle; impressions from these dies occur in gold and in lead: TG113, 114 and TGT/P 110. The appearance of one and the same frame dent on a coin picked at random from a dealer's stock, on a piece long in the Smithsonian, and on four demonstrably different * obverses, is excellent evidence that the same hub was used for all the working dies; one need not further credit Newman's "copy dies" argument, or at the very least one must discard his argument based on the shared dents as constituting supposed evidence for copy dies.

19. The remainder of Newman's page 7 argument is pure chaos. Newman argues from what I call the "circumferential" breaks

that only a single working reverse die was involved. By Newman's theory, two working dies cannot crack identically, which is near enough to the truth to need no rebuttal. By his theory, any raised crack has to be from a break suffered by a working die, therefore if a coin from a demonstrably different working die shows the identical crack in any state, it must have been an impression of a copy die using one of those coins as prototype. This does require rebuttal. His theory entails the conclusion that all the USAOG twenties came from one and the same reverse working die. Even leaving aside the unique letter peculiarities (due to drastic die lapping) on the Kosoff proof EPN 12 = USAOG 123, and leaving aside the sudden appearance and disappearance of a crack from frame to border r. of Y on coins of groups II and IV, or the appearance and disappearance of a crack from period after 3 to frame on coins of group III, or the appearance and disappearance of a crack from 5 to border on coins of group X, or the appearance and disappearance of dents on I of UNITED and frame line below F on other group X coins, his theory falls down as not only unprovable but contrary to fact. His theory entails that all twenties showing any trace of the "circumferential" breaks (at r. from AS to L to C to space between 18, later at left from I of UNITED to C in OFFICE to S, and from T to F to A) must have been made from one and the same working reverse--or else from a copy die cast or hubbed from a coin from the said reverse. His theory entails the conclusion that absence of TE chip or circumferential crack on the HAS coins of what I call group V, and presence of both chip and one crack on HAS coins of groups VII through IX, and presence of chip and both cracks on non-HAS coins of group X, with presence of frame dent on all of these, represent an impossible combination pointing to the manufacture of copy dies, viz. counterfeiting. The necessary and

sufficient solution is to recognize that a number of different working reverses had to be made, that several different hubs were used and that these hubs were all from the one matrix which was in the process of cracking up as the hubs were being raised from it. Only this assumption accounts for unique letter peculiarities distinguishing different working dies of group X (all showing all circumferential breaks); but this same assumption accounts for the alleged anomalies of the HAS coins into the bargain, without the slightest difficulty. The circumferential cracks represent the four stages of cracks being suffered by the matrix as four working hubs were raised from it; and the letter peculiarities aforementioned represent minor handwork of the like on individual working dies.

20. Other specifics of Newman's theory can likewise be accounted for on this basis without straining for ad hoc assummptions. The spur at first A of ASSAY is not part of the "circumferential" breaks but occurs independently of them. The lump at first A of ASSAY is not part of the "circumferential" breaks but appears on one working die as a chip; it differs in direction from the crack from A to frame line found on some Group X coins. Presence of the said frame dent and dent on I of UNITED on both HAS and non HAS coins points to a common origin in the hubs. This in fact can be used to establish a line of argument in favor of genuineness; whoever made the dies for HAS coins had access to original equipment and did not need any such crude procedure as casting dies.

21. Furthermore, if the "circumferential" cracks were in one working die and represented progressive deterioration thereto, they would increase continuously. Coins showing progressive breakage of one and the same working die can normally be arranged to show numerous intermediate states of the breakage. This is not possible here; the circumferential breaks occur in four states only, and other cracks

appear and disappear during any such arrangement from early to late. Group V may represent an early stage of the matrix, two or three working dies showing neither the TE chip nor the break. Groups II, III and IV represent probably twenty working dies from a later state of the matrix, after the TE chip had occurred but before any breaks of the "circumferential" group had begun, but sometimes with other cracks. Group VI consists entirely of individual tablet puncheons cut down from working dies; to date no regular twenties can be located from this group, though they may well exist. A small fragment of the right-hand circumferential crack can be made out. Groups VII through IX, all * coins, represent apparently three working dies showing full circumferential break at r., none at left. Group X, non-* coins only, show breaks at both sides, other cracks being found as well on some coins, representing six or more working reverses. This state of affairs, again, is consistent with the four hubs hypothesis and requires no ad hoc assumptions. Group V continues to represent a problem but even if it should develop that the working dies were drastically repolished and retooled, still establishing the source of the groups VII through IX coins with the same obverse as those of group V would entail the conclusion that group V had the identical source. If VII through IX should prove genuine, they establish genuineness of group V; the maker of V had the identical obverse die used on VII--IX.

22. Newman's reference to a 170-reed collar as unique to the * coins is no proof of falsity, and it is based on the premiss that Humbert's operation used only one collar (162 reeds). That premiss is false; the subjoined catalogue shows that a 150-reed collar was used on 1852/1 twenties. The various * coins in fact use several different collars. For that matter, San Francisco mint twenties in the eighteen fifties show several different collars, two with 154 reeds, two with 155, others with different numbers. Half dollars

of 1837 use four different collars in three different diameters: 29.5, 30 (2) and 31 mm. Half eagles of 1840, all mints, come with two different collars representing two different sizes; 1876CC 25¢ pieces come with edge counts of 119 (standard) and 153; Philadelphia double eagles come with edge counts ranging from about 154 to 170. It is therefore unsafe to conclude either genuineness or falsity based on edge counts alone. Making a grooved collar is easy using either a lathe, a special file, or a casting process. The presence of non-170 collars on * coins means that their maker had access to several different collars in different sizes. For data see the subjoined catalogue; I judge that at least four different collars were in use, accommodatingng different diameters.

23. Newman's extended argument based on the spiral lines found on EPN*6 or VII-2 (pages 8-9) represents to me a tempest in a thimble. Newman claims that a lathe on which such a spiral could be turned did not exist in 1853. There is a fundamental error of fact here, as any collector of large cents could point out. A still tighter spiral is found on many obverse dies of draped bust cents of 1802, 1803 and other nearby dates; this must have been made with some kind of cross-cut lathe for the purpose of turning the die blank down into a regular blunt-nosed cone preparatory to setting it into the hubbing press. I have also seen the letter from Professor Woodbury of Mass. Institute of Technology, the speciakist in history of technology, which sufficiently convinces me that Newman has erred here.

24. Spirals on a die blank are readily accounted for either from the mentioned cause or from the use of the Contamin portrait lathe, in the mint from 1836 on. The pattern cents of 1854 (usually misread as "1851"), Judd 156-159, Adams-Woodin 145-148, derive their obverse from an 1854 silver dollar die by use of the reducing

lathe, i.e. the aforementioned portrait lathe, without the necessary additional handwork to remove the said spirals; this is documented in Judd. Spirals on a planchet tend to suggest some kind of experimental procedure on a cast blank designed to reduce its weight to some standard, or else to make one face a true plane, the blank therefore a true cylinder. Gold, like mercury, tends to have a positive meniscus, so that a cast blank (especially in an open faced mold) will be convex. In the event that experimentation was going on intended to save wear and tear on machinery, casting blanks might well have been tried out as an alternative to the costly, troublesome and time-consuming procedure of rolling ingots into strip and punching blanks from the strip. The difficulty here is always going to be standardizing weight, of course. I am not saying that this was the intent of the maker: only that this is a possibility overlooked by Newman. In any event, the spirals are no argument for or against genuineness or falsity. Were they on an obverse die, they could have been worn off or polished off; Ford believes they were, but this would entail either regrinding, buffing or lapping the obverse die after EPN*6 had been made, and I find no distinct evidence that EPN*6 is from an appreciably earlier die state than others sharing its reverse. Were they on a planchet, they could have been made whenever and wherever the planchet itself was made.

25. Which brings us to the question of cast blanks. Newman, page 9, says that x-ray diffraction studies were ordered for coins EPN-2, 3, 4, *5, *6 and *7, and that the films have been interpreted to mean that numbers *5 and *7 (both Group V coins in the subjoined catalogue) are on cast blanks, number *6 (a Group VII, with a different reverse die) on the usual sort of rolled, drawn, cut and machined blank. It is not at all clear to me how x-ray films so made could be so interpretable, especially in the absence of a comparison piece made on a cast blank. Even were one to grant the

interpretation furnished by Newman, it would follow only that at one period, for experimental purposes such as those suggested in pagagraph 24 above, cast blanks might have been used--or even that rolling mills might temporarily have been in disrepair.

26. Newman's very argument leaves open one conclusion which is if anything an argument in favor of genuineness. The Group VII coin tested is acknowledged by Newman as on cut rolled strip. Newman did not specify that it differed significantly from the x-ray diffraction patterns yielded by his numbers 3 and 4, which are acknowledgedly genuine non-* twenties. If they had, he would surely have pounded on the fact as additional adverse evidence! The presumption is, then, that the diffraction patterns of EPN*6 and those of the regular twenties differed only nonsignificantly from each other. If so, it follows that the rolling and cutting equipment available to the maker of the * coins was comparable to the original equipment. Is Newman claiming that Franklin had access to nineteenth century rolling mills, cutting presses and coining presses? Where would he have gotten them?

27. Newman's argument based on the appearance and disappearance of the small spur from right side of N in UNITED disappears once it is realized that the spur from right side of N is from a minute scratch, chip or rust pit on one working die (Group V), and the other working die (Group VII, showing the break) naturally lacks it while showing a different minute scratch or chip or rust pit on left upright of N in UNITED. Confusion of different dies can be the basis of almost any conclusion one could imagine. From a false premiss one can validly argue to any conclusion in the world. Assume that 1 = 0 and it is possible to "prove" logically that 100 = 186,000 or any other paradox you please. But arguing from a false premiss is not a sound basis for arriving at a true conclusion. If Newman

wishes to argue that both these reverses are copy dies, as he does elsewhere in his Inquiry, he will bem confronted with the finding that the number of dies involved in the * or HAS group exceeds twenty and that in addition to the dies allegedly copied from kmown prototypes there are dies of original design using parts of four different nineteenth century alphabets, raising the question of the immense cost of manufacture of dies and the sources of the alphabets. Of this more later.

28. The arguments already presented relating to the raising of four working hubs from a matrix suffering breakage, and the sinking of many working dies from these hubs, destroy Newman's page 10 paragraph beginning "This is conclusive evidence." Since Newman's entire technical case against these coins, to date, arises from his contention that one and only one ~~main~~ working reverse was used for the genuine USAOG twenties, with this refutation his case collapses. Were this a trial in criminal court, the defense would rest. As it is, much more needs to be said, otherwise the status of the coins remains moot.

29. Newman throws suspicion on the set of six lead * trial pieces, page 11, submitted to him for examination, owned by Ford, and pictured as EPN*20-*25 inclusive. He alleged that they were from copy dies derived from coins struck from ~~m~~cracked production dies. This has ~~m~~ already been rebutted insofar as they share dies with gold Group VII coins. They involve four different obverses and two, more likely three, different reverses, per the subjoined catalogue. All four ~~o~~bverses occur on gold pieces. Two of the obvs. (the target obverses, numbered 6 and 7 in the catalogue) are punch-linked with each other and with numerous tablet puncheons; they cannot be copy dies as there is no acknowledged prototype from which they could have been copied. There is a third obverse of the identical

design but reading U.S.ASSAY instead of U.S.ASSAYER, found only on a gold piece, and showing the same letter punches. The alphabet from which these dies were made, i.e. a set of obviously 19th century letter punches, is of the most crucial importance and will be dealt with when we consider the Argienti & Co. ingot and the rusted die exhibited at Ford's bourse table at the 1958 ANA Convention. For now, the set of six trial pieces is not at all "strange" (i.e. suspicious, in Newman's vocabulary) granted that four different obverses and two or possibly three different reverses are involved; in no instance can it be demonstrated that any of these dies were used on lead trialpieces in failing condition after having been used on production runs--which is what Newman had been arguing.

30. The MOFFAT & CO reverse die (die Y) is cited by Newman as a fantasy production. I find it curious in the extreme that if it is a fantasy, it is in obviously 19th century lettering of identical style (though different size) to that used on the MOFFAT & CO ingot die trial in lead found in the estate ofStephen K. Nagy and mentioned in the Lester Merkin inventory of the Nagy material; this die trial is unquestionably genuine and was probably made in Philadelphia. It was never owned by Franklin and is now in the possession of Ford; it has never been doubted nor involved in any controversy. Were there no controversy, one would automatically conclude that die Y had been made by the same engraver who made the mentioned trialpiece. This trialpiece is not in the catalogue; for convenience it is described here: Obv. Around, AUGUSTUS HUMBERT ASSAYER On scroll within, THOUS following space for incused fineness. Below, /D C with spaces left for incusing value. MOFFAT & CO (no period) / Lead, $50 size, usable for ingots of higher values; /round, uniface. Note also that there is no period after CO on either the ingot die trial or on reverse Y. If reverse Y is

spurious, where did the alphabet come from? Nineteenth century letter punches are very difficult to come by, and prohibitively expensive to create. Stephen K. Nagy's own small group of pioneer gold forgeries testify to that; he was never able to get letter punches of the proper style as they were no longer being made--only fifty years afterwards. They would be still more difficult to find sixty years after Nagy's monkey business.

31. The above argument again increases the amount of equipment that must have been available to the maker of the * pieces. The subjoined catalogue exhibits over two dozen dies and puncheons, the nonhubbed dies involving parts of four different alphabets all of mid 19th century style, by at least two different engravers. What is still more significant, there is plain evidence on the dies made from one of those alphabets that various punches chipped and were replaced by others of the same general style. This suggests a much larger operation than a mere brief excursion into counterfeiting. The latter could have been accomplished very simply at small cost without the inconceivable difficulty of locating the necessary equipment; yet the coins and ingots show that far more equipment was used that would have been needed. The cost of such an operation even in the mid 1950's far exceeds the prices actually realized by the assay bars and proofing pieces. Questions of motivation are necessarily involved here. If this was merely a practical joke, it is one of the most expensive ones in the history of numismatics, and one of the least productive. Many of the pieces were sold by Franklin and/or Ford at prices less than the cost of manufacture had they been made recently. If the maker was a wealthy madman, he exhibited the strangest combination imaginable of extreme sagacity with years-long study (anticipating discoveries only later made by me, incidentally) with extreme stupidity and capriciousness, for financial

recompense only a small fraction of what could have been accomplished by more adroit use of the identical equipment. For instance, the maker could have left the Argienti & Co. ingot unmutilated; he could have easily made up a Shultz & Co. ingot at far greater ease of sale; he could have used his puncheons and dies to create a greater number of rectangular currency ingots in different denominations.

32. At this point it is necessary to bring in the prime exhibit, namely the catalogue of * coins and ingots and related material. After which I shall demonstrate how, to my own surprise, the lead trialpieces, the Argienti & Co. ingot, and the rusted die aforementioned, build up a case of positive evidence establishing, to the best of my knowledge and belief, that the maker of all this material had access not only to original equipment owned by the USAOG, but also to sets of letter punches owned by Albert Küner and known to have been destroyed by fire (with Küner's entire equipment) prior to 1911. This will suffice to establish the genuineness of the controversial * coins.

PART TWO. EXHIBIT OF HUMBERT ASSOCIATE SOURCE MATERIALS.

33. For convenience I must exhibit this catalogue in tabular form, preceded by a list of the dies and puncheons used to make the coins, currency ingots, trial pieces, experimental pieces, assay bars, proofing pieces, &c., there represented. If readers wish to save time, they may skip to Part Three, which follows the catalogue, and read the conclusions there drawn.

34. The following is a list of the dies and puncheons used. Obverses are numbered. Reverses are lettered in capitals. Puncheons and logotypes are lettered in lower case.

35. For convenience in this same section there will be shown a group of obverses and reverses used on regular USAOG twenties.

I have earlier alluded to Groups I through X. These locutions will be explained in full by the catalogue following. It will be seen that the * coins fit neatly into place. Numbering of obverses and reverses for the regular coins (groups I through IV and X) is not yet possible because sufficient specimens for definitive die variety study have not been available, hence the use of Roman numerals for hubs of obverses, working dies being distinguished by arabic numerals affixed. Similarly for reverse hubs, which are lettered in capitals.

36. Sometime before Jan. 1, 1853 the Philadelphia Mint completed matrices for the adopted designs of USAOG 1854 twenties. Trials of three of these matrices survive, one in lead in the Connecticut State Library, Hartford, ex J.C.Mitchelson, presumably ex Nagy, from a die which was (as of 1911) kept in the Philadelphia mint according to Adams. Matrices all show horizontal guide lines at tops and bottoms of letters together with a center dot; the double punching on 53 is very plain, much more so than on any regular dies. There is a nickel impression from two of the three matrices, weakly and imperfectly struck, never in the hands of Franklin and obviously not from the * source; this piece has been traced back to Waldo Newcomer, possibly to Nagy. Ford has a copper impression from one of these matrices; it is exhibited among his USAOG photographs. This piece also was from the Nagy material. The lead trial of the matrix in the Hartford library shows a frame dent below F but this differs slightly in position from that shown on the coins of groups V through X, and appears--if indeed it was raised on the matrix--to have been partly effaced, partly moved by attempts to mefface it, at the time the matrix was ground down to prepare it for raising hubs. Another matrix got into the hands of Nagy, who found a numeral 2 punch, scraped and ground down the matrix to remove the 3 of date as well as the guide lines (but not

the center dot), after which he punched in the 2 to make a spurious "1852" die. Impressions exist in silver and copper and lead and possibly other metals; round and square. Several of these were in the Nagy estate, according to existing inventories.

37. The obverse and reverse of the Group One coins, viz. the 1852/1 Humbert 884 THOUS twenties, are not from the hubs used to make the dies for groups II through X, therefore they are not included in the enumeration of dies to follow. Note that the eagle is differently shaped, and colons follow THOUS: And MS AMERICA DOLS: Lettering style indicates a Philadelphia Mint origin for these as well as for the 1853 twenty dies, or at least for the matrices and hubs. Lettering style of reverse indicates a common origin for this reverse, and the similar ten dollar reverses, for the tablet dated 1851, silver impressions from which were in the Nagy estate and in the Nagy consignment included in the 1958 ANA Convention auction catalogue.

38. The following hubs are identifiable for twenties of bearing date 1853.

I. Obv. Eagle, 884 over 880: group II.

II. Obv. Eagle, narrow 900, no overpunching showing, the 900 punches as on the $10: single die of group III.

III. Obv. Eagle, wide 900 over 880: dies of groups IV through X.

Rev. A. 1853 tablet. Without TE chip or breaks: group V.

Rev. B. 1853 tablet. With TE chip. Without "circumferential" break of C or D. Groups II, III, IV.

Rev. C. With TE chip. With lump between S and L. With minute trace of die failure in area which will later show "circumferential" break. This may exist on regular non-* twenties (to be called VI), but so far all specimens shown have proved to be lightly struck Group X's. It is represented on at least five distinguishable tablets cut down from dies of regular type. As one of the tablets (listed later as a)

lacks the distinguishing features of the other four, it is also possible that several microscopically distinguishable dies are actually included under this designation. The problem with wholly hubbed material is identical with that involved in distinguishing reverse dies of late date cents 1844-57; in the absence of recuttings, retoolings or die failures many probably different dies are of necessity not told apart.

Rev. D. With the TE chip, the mentioned lump between S and L, and the "circumferential" break at r., from AS to L to C to between 18; this break always in the same place and occupying the same extent. Groups VII, VIII, IX/ At least one and probably three reverse dies, all with spur or minute rust pit on r. side of left upright of N in UNITED.

Rev. E. With the TE chip, the mentioned lump, circumferential break at r. as preceding, and left-hand circumferential breaks: from I to O to S, from T to F to A. Group X, all non-* coins. At least six dies distinguishable and probably more.

39. There follows a list of Class One items, both HAS and otherwise. All asterisked pieces and no others are traceable to the "Humbert Associate Source."

GROUP	USAOG	TG	EPN	Edge Count	Remarks
I-1	AH100			150	1852/1 $20. 884 (widely spaced) THOUS: Scroll different from any to follow; eagle differently shaped, small branch with 2 berries, colon also after DOLS: Rarity 7. Five different specimens examined, one of them a proof.

Group II. 884 over 880 THOUS. Obv. I--perfect I of UNITED, perfect E's and A's. I have not yet seen enough specimens to tell if more than one working die came from this hub.
Rev. B of paragraph 38. At least 1, possibly 2 working dies.

II-1		1	162	Sloss. Rev. Without visible crack at frame to border r. of Y; without visible dent on frame below F. If lacking the latter, this should be called rev. B2.
II-2		10	162	JHU. Photo not supplied by Newman;

Group	USAOG	TG	EPN	Edge Count	
					but as he mentions no frame dent it is probably from the same dies. Quality of photo supplied by JHU not good enough for certainty.
II-3	105			162	Smithsonian, ex Mint 1625 (1912-14 cat.by Comparette). WITH CONTROVERSIAL FRAME DENT BELOW F. With die crack from frame r. of Y slanting up to border; this crack visible to naked eye. Call this cracked die B1.
II-4	127			162	Same dies, more worn; the frame dent now weaker, showing only as a small faint depression in the same area, the crack plain.
II-5	145			162	Identical dies, same state.

Obv. hub II.

GROUP III. /Narrow 900 on scroll, the 900 from the punches used for the $10. I in UNITED lacks top serifs, N and E's in UNITED STATES lack top left serifs, E in TWENTY lacks bottom left serif, E in AMERICA normal. Only one working die identified: weak crossbars to A's Rev. B3. Similar, from the same hub as group II coins, but without the die crack of B1, and without or with a different crack from frame to period after 3. This group is very rare.

III-1	110		162	Uncracked rev. die.
III-2	116		162	Rev. cracked as described.
III-3			162	"LAY-3." Coll. Leo A. Young. Uncracked dies.
III-4	128		162	Ditto, different provenance
III-5,6	150-1		162?	Ditto
III-7			162	Hartford, Conn. State Library, ex J.C. Mitchelson. Earliest die state recorded--heavy striae left of frame.

As details of the obverse are identical in placement on hubs I II and III save only for the 900, the conclusion is that the matrix contained 880 THOUS. and that on one hub raised from it the numerals were altogether effaced (scraped off after softening) after which another master die or matrix was sunk from it and the 900 hand punched in at Philadelphia. This was probably done after the rather unsightly 884/880 and 900/880 hubs had been created. The presumption is that hubs were sent to USAOG in San Francisco, either overland or via Cape Horn. Shipping working dies would have meant repeated costly and risky shipments with the perpetual danger of dies getting into private hands. Shipping hubs or master dies, perhaps unhardened, would have entailed less repeated risk. The narrow 900 may have been represented by a hub raised from the altered matrix, or by a matrix itself created in the manner just mentioned.

GROUP IV. Obv. hub III. Wide 900 over 880 on scroll. I in UNITED lacks top serifs, N in UNITED lacks top left serif, E's in UNITED STATES normal, E in TWENTY has bottom left serif always weak, sometimes partly repaired, sometimes altogether missing (various working dies), E in AMERICA lacks top left serif. Many working dies. Usually has normal crossbars to A's.
Rev. B of paragraph 38, many working dies.

IV-1 123 12 162 Proof. E. Seavey (1863-73), Ulex, Peoskey, Newcomer, Wayte Raymond, C. . Green, J.F.B 11, King Farouk, A. Kosoff. Obv. III4: Drastically lapped, LIBERTY thin-and-distorted, lapping at 900 THO giving partial mirror surface in scroll, imperfect crossbars to A's. FAINT DIAGONAL CONTROVERSIAL MARK AT FINAL A. Rev. PLAIN FRAME DENT BELOW F. Drastically lapped (B4): r. stroke of Y, base of C and left part of triangle of A in CALIFORNIA missing. Outlines on 53 heavier than usual. Looks like Philadelphia Mint work.

IV-2 162 LAY-1. Leo A. Young. Obv. III2: lump r. top of N in UNITED, recutting on A. STATES, imperfection on R of Line through ALIF very plain. Rev. B5. Cracks through bases of ES.

IV-3 162 LAY-2, same provenance. Obv. Normal, III3. Rev. B6. Recutting on lower curve of D. No lump between S and L. Faint trace of curved crack from tip of C of SCO to center of base of L, not identically placed to crack of groups VII through X.

IV-4 3 162 Sloss. Obv. III4. Crossbar of first A weak, others normal. Rev. B7. Right arm of Y very thin, but intact; F in FRANCISCO normally formed. III5.

IV-5 19 162 EPNewman./A's normal, part of left base of E in TWENTY restored. Rev. B8. Right arm of Y broken away (die lapped) and crossbar of F in FRAN slants down.

IV-6 106 162? Smithsonian, ex Mint 1624 (1912-14 catalogue). The part of 8 above 0 is angular. E as in IV-5, A's normal. Strong die file marks at neck. These are in the hub, from the original obv. matrix, but are usually lapped off working dies. Call this die III6. Rev. B9. Lapped, unusually few traces of extra outlines to letters; Y normal, r. stroke clear and intact.

IV-7 156 162 Ex Stack's. Obv. III4. Rev. B1 of group II, with the identical crack from frame to border r. of Y, and the faint trace, almost effaced, of frame dent below F.

IV-8 162 Conn. State Library, Hartford, ex J.C.Mitchelson. Normal obv., probably III3. Rev. B10. Recutting left of 5 exceptionally strong--on all others it is identically placed (from the matrix) but weaker. Strong lines below UN. Y intact, barely free of A. Crack through tops of STA.

It is very probable that other obvs. and revs. exist. This presentation of group IV coins effectively destroys Newman's claim that only one working die was in use.

GROUP V. * coins only. Obv. Same hub, only one working die--might be called III7. The hub was injured before this working die was sunk from it: dent on I of UNITED; signs of wear, tops of UN somewhat rounded; small round incuse mark r. of final A; small nick on border above final S. The working die shows three rust pits left of ribbon, one below, a fifth developing gradually atop E of UNITED, together with many very faint rust pits in field. Die lapped; impressions in group V are all prooflike, though this is not the case on coins of groups VII through IX or on impressions of this obv. on ingots. Rev. A1, as described below.

V-1 *124		170	Yablun 5/9/58, Murrell, Clifford
V-2	*5	170	Paul Garland, Tommy Ryan, ex Mike Kolman 8/15/58. The piece at issue.
V-3 *102		170	Ford
V-4 *101		170	Ford
V-5 *104		170	W. Amelingmeier
V-6 *113		170	W.Coast institutional coll. ex H.H. Clifford, 3/3/58
V-7	*7	170	Sloss, ex NN 2/3/59. Rev. slightly double struck??
V-8	*16	170	Kagin, ex Landau, J.F.Bell, Murrell. Ditto? Photograph not now available. Chip on R.side N in UNIT;

All preceding are from one reverse die. Hub A,/without raised chip at TE or any lumps or circumferential breaks; minute spur from base of first A. Radial cracks at 5:30, 6:30 and 2:00 from engine turning to border, these cracks apparently from the hub, thin and hairlike, sometimes very hard to see. Distinguishing marks of working die A1: AY barely free, right arm of Y broken, die much lapped, buffed--prooflike. A second working die, A2, has AY strongly touching, and will be further described later on.

Three of the eight coins of group V, namely V-1/2, 4 and 5, were given x-ray fluoroscopic analysis at the Boston Museum of Fine Arts, to check on the handkerchief story. (Franklin claimed that at the time of purchase from the Humbert employee's descendant, the seven prooflike examples of group V were individually wrapped in ancient linen handkerchiefs, on each of which had been written alloy composition and weight, in each case differing slightly; but the man had refused to part with the handkerchiefs at the time.) The results were as follows:

	gold	silver	copper	weight
USAOG--101	910	80	0	514.6
USAOG--104	890	90	5 to 10	516.6
USAOG--124	880	85	30	516.0

Note that the weights vary inversely with the amount of gold; the lightest one has gold above federal standard, the heaviest is a little low (as would have been expected in fancy experimental productions); note also the exact round-numbered proportions. Had all been of the same alloy, or varied only randomly say from 886 to 891 gold, or--worst of all--had they proved to be of standard 900 fine gold with less than 50 parts silver, that would have been suspicious. These results tend to confirm the view that the Group V coins were experiments of some kind. The gold has the look of

California gold; either the maker had access to a considerable amount of it, not all obtained by melting down worn Moffat ~~m~~fives (where would he have gotten enough to melt down?), or else he had access to very accurate smelting equipment, probably a large supply of 999 fine gold ~~w~~with pure silver and pure copper. If the latter, different ingots had to be made for each of the group V coins--an inconceivably tedious and difficult process especially for getting homogeneity on small melts, and for what purpose?

GROUP VI, * only, designates ~~t~~o dates not coins but impressions of hub C, paragraph 38; so far, all specimens seen are isolated tablet impressions cut down from working dies. One with frame line showing has the frame dent below F; ~~o~~thers do not show frame line and the shapes differ slightly as one would expect from the process. It is entirely possible that non-* coins may be discovered with group VI reverses; like group IV above but with lump between first S of ASSAY and L of GOLD.

GROUP VII. * only. Obv. III7 above, relapped, feathers below shield weaker; always now with rust spot on top stroke of E of UNITED. Rev. D~~1~~. Right hand circumferential break only. Chip at r. edge of left upright of N in UNITED. F~~r~~ame dent b~~e~~low F. Lump at vertex of first A in ASSA~~Y~~. Break at border at 3:30; none of the cracks of preceding dies. Working die D1: AY about touch. WOrking die D2: AY well apart at bases. D3 appears to be a third working die, found on lead trialpiece TGT/P 109 = EPN*20. None are prooflike. engr VII-1

Always with break in denticles at 3:30 on rev.

VII-1	*111	*14	170	Forman ex JJFord
VII-2	*114	*6	170	Tobias. Spirals on obv.
VII-3	*119		170	J.M.Weisman. Greenish gold, less copper than usual, possibly none.
VII-4	*120		170	J.C.Browning ex Tommy Ryan ex Franklin.

GROUP VIII. * only. Obv. III7 above, still later die state with more rust pits in field, larger rust pit atop E of UNITED, mark at final A weaker (die worn), dent on I weaker (ditto), rust pits in 900 making it look like "900/884". Rev. D1 as preceding.

VIII-1	*122		170	Joseph Eisenberg ex Tommy Ryan. ~~W~~Weak ~~s~~strike, not up in centers. Shows large field rust pit of group IX. ~~N~~Very minor reverse doubling, obverse normal.
VIII-2	*112	*31	170	~~Xtx~~Forman ~~s~~took ex Batchelder, probably from Franklin; ~~t~~ ↑↓ over ↑↑. D~~i~~s~~c~~overed by me, WB, to be from the controversial dies; originally shown me as an ordinary USAOG twenty which happened to be double struck on reverse, evidently bought as nothing more unusual than a mint error by Forman. Field chip of group IX weaker--earlier die state.
VIII-3		*15	170	Provenance unknown, pho~~t~~o not available; described by EPN as double struck on both sides. Not the same as either of preceding.

GROUP IX. * only. Not double struck. Obv. III7 in latest die state known; heavy chip out of die in field midway between beak and r. end of scroll; same rust pits mentioned earlier: Rev. D1 as preceding. Not as prooflike as group V, more than VIII.

IX-1 *103 170 Amelingmeier ex Franklin

IX-2 *100 170 Ford. Silver. Identical.

GROUP X. Non-* only. Obv. Hub III, many different working dies; the dent on I of UNITED always present or represented by repairs or attempted effacement (sometimes crude, sometimes more successful) sometimes very plain. Rev. Hub E/TE chip, lumps of VI, circumferential break at r. of VII D, circumferential break at left (constant): from I to O to S i.e. faintly to A and T to F below. Break at 3:30 in denticles always present. Frame dent at F usually shows but is sometimes weak or repaired (minor lapping) on various working dies. No chips at N of UNITED.

X-1 107 162 Smithsonian Institution, negatives 102a-b. Obv. Dent on I plain. Rev. Frame dent below F plain. Obv. Y thin especially on r. arm. Spur down from second A in ASSAY. Extra cracks in this working die: to left from base of O in GOLD; down from C in OFFICE. Call this obv. III8, rev. E1.

X-2 126 162 Private collection. Obv. III9. Dent at I repaired. Rev. E2. Frame dent plain. Y normal. Very clear lines at bases of UN, tops of CA.

X-3 130 162 Obv. Probably III9 Rev. E3. Frame dent shows. Break at 3:30 shorter than on other dies (lapped die). Lump between second S in ASSAY and D below. Extra cracks from O in FRANCISCO to D to AY above and from 5 down to r. to frame. Without the cracks of E1.

X-4 157 162 Obv. III10: dent at I effaced by graver. R has thin weak upper left serif, unlike other dies. Crakes join D of value to rocky base. Rev. E4? Rusted die. 3:30 crack short. Frame dent shows. Right arm of Y thinner than usual; minor doubling at top.

X-5 17 162 Kagin. Obv. III11? dent at I repaired; photo not good enough to tell if identical to III9 in diff. die state. Rev. E5. Frame dent effaced; die shows other signs of heavy lapping. AY farther apart than usual. Y thinner than usual. Many defects around C in OFFICE. Heavy doubling left of O in OFFICE, C in CAL.

GROUP	EPN	Edge	
X-6	18	162	Kagin--O. Probably III9. Rev. E6. Frame dent small, partly repaired. Right arm of Y broken away. Line below U shorter than usual. Various chip-like defects which may be rust pits: between A in SAN and LI, between N in SAN and IF, in second S of ASSAY, below 5, etc. Crack joins F and A and this crack not elsewhere seen;

Under no circumstances could ths six revs. of hub E represent one and the same working die. The cracks are mutually exclusive. We have so far described in Group One ($20's of regular design) not less than 13 obvs. and 19 revs., and are under no illusion that a complete enumeration has been made.

40. Before proceeding further with the three remaining controversial pieces of Class One and the other * pieces of Classes Two through Seven, it is necessary to complete the enumeration of dies, tablets, puncheons and logotypes, as all pieces to follow are recombinations of these. Remember that obverses are numbered, reverses assigned letters in upper case or capitals, tablets etc. are assigned lower case letters.

Obv. 1. Same as III7 above, rusted as in group IX.

Obv. 2. Altered transfer die of $50 denomination. H, III, with dent on I of UNITED, without rust pit on E. Without TWENTY; with 50 (the 0 double punched and with a small horizontal mark at left top) below eagle. Feathers strong below shield, scroll mostly missing above 900, and incomplete above (left of) LIBE. No rust at 900 THOUS. Rust traces near ribbon. Could not have been made by hubbing from III7 because of divergent features just named.

O. 3. Similar. Denomination 50 D. perfect, without repunching on zero or mark at top left. Scroll complete above LIBE and 900; slight rust at 900 THOUS., feathers weaker below shield.

Obv. 4. As last two but without any denomination at all. Scroll complete but thin and shallow above LIBE, feathers strong below shield, scroll shallow but complete above 900, marked rust at 900 THOUS.; no stippling on ribbon end at r. unlike any preceding.

(Note. Os. 2, 3, 4 were made by the following process. The III hub was used to make another working die, which was placed into the press opposite another die blank to make a copy hub. This copy hub, naturally bearing TWENTY D., was softened by annealing and the word TWENTY scraped and buffed off, after which it was rehardened and three new working dies sunk from it. One of these received no denomination at all; the other two received 50 D. Before being used to sink these working dies, the copy hub suffered a dent in border above M, which does not show on III7 naturally.)

Obv. 5. $20 size. Around central target, A.HUMBERT U.S.ASSAY (innermost), THOUS. above, DOLS. GOLD below, space left for large incuse punching of fineness left of THOUS. and for similar punching of denom. r. of DOLS/GOLD.

(Note. This obv. shares the working U.S.ASSAY with a copper $10 pattern of 1852 in JHU, not known to Franklin, also unknown to Adams; ex T.Harrison Garrett many years before. The pattern in question has the regular style eagle and 884 THOUS. TEN DOLS., and on rev. UNITED STATES ASSAY / OF GOLD. CALIFORNIA / 1852. This does not appear to be a coincidence.)

Obv. 6. Similar but ASSAYER. THO close, O U S wide, period after S in THOUS. lined with R upright of T on a line between O U; U M widely spaced.

Obv. 7. As preceding. THOUS. evenly and fairly widely spaced; HUMBERT about evenly spaced; period after S lined with E; upright of T about centered below O.

The three preceding obvs. were not hubbed but hand-punched using an alphabet seen also on other dies. I shall establish further on that this alphabet is the work of Albert Küner.

Obv. 8. Oblong. S.M.V. / DOLLARS / in / GOLD / & / SILVER in frame; caps same alphabet as larger font in reverse W below, lowercase letters not elsewhere seen but obviously of mid 19th century style, space left for incuse punching of denom. above DOLLARS. By Küner as I shall prove below. Found only on the $38 (1851) Argienti ingot.

Rev. A1. Die of group V earlier discussed; AY barely free.

Rev. A2. Identical hub, working die different; AY touch strongly.

Rev. D1. Die of group VII earlier discussed; AY about touch.

Rev. D2. Same, but AY well apart at bases.

Rev. D3. Similar.

Rev. W. Badly rusted $20 size die, the actual cylinder still preserved. In small caps, AUGUSTUS HUMBERT (around) / UNITED STATES / ASSAYER / OF / GOLD / (large) MOFFAT & CO / SAN FRANCISCO / CALIFORNIA / (space) THOUS / 1852 in 10 lines, the first 3 and the date circularly curved, the rest straight; save for the single large line, the punches are small and from the identical alphabet used for obvs. 5, 6 and 7 just described, save that by the time these obvs. were made the defective N here seen had been replaced. U in HUMBERT punched over an H, first A in ASSAYER first cut too high then corrected, second A over an E, G D in GOLD strongly double punched, R in CALIFORNIA first cut too far r. then corrected. The space left of THOUS is obviously for incused fineness.

R. X. $50 size. Target center small, no legends, space left for incused numerals presumably for weight and fineness and/or serial number, beaded border.

Rev. Y. I. one curved line or arc of circle, MOFFAT & CO without period in letters of identical style to those on the Moffat/Humbert lead trialpiece from Nagy, USAOG-S below, though the letters are of larger size. $50 diameter. Circular guide line below inscr. The die may have been unfinished or else space left for incusing

USAOG--37

GROUP	EPN	Edge	
X-6	18	162°	K in. Obv. Probably III9. Rev E2. Frame dent small, partly repaired. Right arm of Y broken away. Line below U shorter than usual. Various chip-like defects which may be rust pits: A in SAN to LI, N in SAN IF, in second S of ASSAY, below 5, etc. Crack joins FA, this crack absent on other dies.

Under no circumstances could the six reverses of hub E represent one and the same working die; the cracks are mutually exclusive.

To class One (currency ingots) should be added the following pieces. It may be claimed that this is begging the question, but to date we have established at least a reasonable doubt of falsity and the proof of genuineness will follow in Part Three once the coins have been enumerated.

USAOG	TG	Edge	Remarks
	113	Obl.	Oblong $200, "Twenty Eagles" or "Double Union."

denomination, fineness, weight and serial numberm if any.

Rev. Z. Oblong. ARGIENTI & Co. / BANKERS / ozs / dwt / grs / thous In upper and lower case letters as indicated, within frame. The capitals are from the same font as MOFFAT & CO of reverse W and large letters of obv. 8; the lower case as on obv. 8. Spaces left of the four lowercase words obviously for incusation.

The following items are logotypes or tablet puncheons. Those lettered a through e are cut down from xGroup VI $20 reverse dies, all showing lump between first S in ASSAY and L below; cut down by hand, differing in shape and slightly in size.

a. UNITED STATES ASSAY / OFFICE OF GOLD / SAN FRANCISCO / CALIFORNIA. 1853. with normal letters, lump between S and L as mentioned and minor recutting on 5. Probably several different tablets not readily distinguishable are included under this letter; compare b below. They may be distinguishable by size or shape.

b. Similar. Horizontal crack from left border pointing to base of O in OFFICE. Comes unrusted and with varying degrees of rustiness. Cannot be distinguished from a unless either left border is visible or rustiness is present.

c. Similar. A's notably heavier than usual, distinction between legs and serifs obscured; hub worn, impression very heafy.

d. Similar to a, but die defect up to r. from period after A.

e. Similar to a, but retains frame, the dent showing below F.

g. Very small tablet with No.

h. Very small tablet with 999

i. Small tablet with THOUS the S double punched.

j. Narrow tablet with GRS. and space for incuse numbers.

k. GR on very small tablet.

m. Tablet puncheon with KNFT SHULTZ & CO / ASSAYER

r. Tablet puncheon with A. HUMBERT / U.S.ASSAYER : the U above H-M, SS closely spaced.

s. Similar tablet puncheon, U a little below M, BERT higher, U.S.low, SS not unusually close.

In the foregoing group, i, j, k, m and r are punch-linked with rev. W and obvs. 5, 6 and 7, the identical alphabet being used. The tablet s is punch linked with these in turn, using the same alphabet in which E, R, S, U and Y (having chipped) are replaced by part of what would have been a fourth alphabet, the others remaining identical. Reverse W seems to have preceded all these, as it contains only the earlier or older punches plus a badly defective N which must have been immediately replaced.

41. In all combinations to follow, the hypher - separated obverse and reverse elements, except for incuse numbers which are sometimes shown on the actual bars as separated by hyphens. In instances like 2-X, 3-Y, 1-D1 the notation is obvious enough. On pieces with tablets or logotypes, the elements are listed from top to bottom of obverse, in order, then the hyphen, then top to bottom of reverse. Uniface pieces have hyphen following or preceding according to whether obverse or reverse is involved. A designation such as girka- means that the five elements so lettered are punched in from top to bottom of obverse, but reverse is blank. A designation such as si-a means that the tablets s and i are paired on top face, a on the other side. On pieces with incused numerals, those will be given AFTER the die or tablet combination, but obv. and rev. punches will be separated by //. Thus the piece TG119, designated 7b- 900/83.71/1358 // 2/4½ OZS alludes to an oblong assay bar showing obv. 7 above tablet b on obv., 900 and 83.71 incused in the appropriate places, serial number 1358 below, no tablets on rev. but 2 above and 4½ OZS (individually punched, not logotyped) below. This system may seem unduly complicated but in practice it is selfexplanatory.

42. The catalogue resumes here with three controversial pieces which seem to belong to class One.

USAOG	TG	Edge	Remarks
*	113	obl	Oblong $200, "Twenty Eagles" or "Double Union." Dies 4djr-, 200 incused below eagle, 5162 after GRS. Additional impression of logotype r on one end.

The two following have the look of coins despite incused fineness and value; they may prove to belong to class 1 or 2 but information is as yet insufficient to afford unequivocal decision which.

B*	165?	7-D1	900/20.00 // Edge test marks, hence edge count is only guesswork; reeds slightly wider apart than on regular * twenties. Wt. 496.85 gr. Double struck.
D*		?	One Ounce. -c 1/900 // Extremely close shallow spirals. Wt. 479.8 gr. (circulated). There are Archives references to the issue of One Ounce pieces (standard weight 480 grains troy) but these were not known to Franklin when this piece was discovered. Pictured in 1965 Guidebook.

CLASS TWO. ESSAI COIN INGOTS. ALL *

USAOG	TG	Edge	Remarks
E		oct	1-A1 Octagonal $20. Double struck. Wt 421¼ gr.
F		?	1-A1 Double struck on broad $50 size flan. Early die state.
121		p	1-W Overstruck on 1852 cent, reverse die UNRUSTED, obverse in early state without the chip of obv group IX, the cent now with ancient deep red patina. This overstrike is the key to the whole situation, and provides an essential element in the proof of genuineness of the whole group of * items.

CLASS THREE. EXPERIMENTAL PIECES. ALL *.

G		?	2-X. Gold. $50 size. Not available for study, dies identified from photographs.
	114	?	2-A1. Gold. $50 size, plus. Ditto.
	125.	170?	2-A1. Piefort of $20 size.
	121	170?	2-A2 Ditto.
	117	170?	5-A1 900/44.77 // The only impr known of obv. 5
	118	170	6-A1 900/20,00 // 3/516 The 3 for experimental alloy?
A		170?	6-A1 900/20 // 3/516 Ditto
C		170?	7-D1 999/32.25 // 2/742 Ditto? Both sides double struck. Wt 746.65 gr.
	126	170?	7-A3? 900/21.06 // inverted 540
	133	170?	7c- 999/28.52//Spirals

CLASS FOUR. TRIAL PIECES.

The coin called IX-3 or USAOG-100 of class one, silver, belongs here. (edges always plain save for said IX-3)

TGT/P	EPN	Remarks
109	*20	1-D3(?) 900 removed from scroll. Lead.
110	*24	3-Y early state lead
115	*25	3- late obv. state, lapped, ribbon end weak above IBE, fewer feathers above shield. lead
111	*21?	6-D1 000/0000 // lead
112	*22?	7-D1 000/000 //2 the 2 inverted lead
113	*23?	7-D1 000/0000//2 lead

The ?'s beside the last three EPN numbers are because I had to return the photographs too soon to verify the varieties; the coins were checked in the metal, but no photographs were there from the Newman set. Possible transposition of numbers will not affect the argument.

USAOG Remarks (all edges plain) none are *

T nickel uniface obv. and rev. impression from two matrices. Ex Newcomer, Boyd, Farouk, H.H.Clifford.

125 copper uniface impression of one matrix. Ford

133 lead uniface ditto, octagonal; misplaced frame dent below F; Conn. State Library, Hartford, ex Mitchelson. Pictured in May 1909 Numismatist. The illustration in Adams, no. 84, is not from this but from a plaster-cast of the die preserved in the Philadelphia Mint (1911). this die may remain there or it may have been destroyed in 1938 with other old dies then kept in the mint cabinet collections and not sent to the Smithsonian.

U silver SQUARE uniface impr of "1852" matrix altered by S.K. Nagy from original 1853 matrix obtained from Igler or Snowden from the mint. Dr. Katz coll.

122 ditto ditto Ford coll.

~~109~~ 111 same copper uniface round Ford coll.

109 same copper uniface round extra broad flan Ford coll.

108 same in lead.

S uniface lead trial of $20-size ingot die mentioned in paragraph 30. AUGUSTUS HUMBERT ASSAYER around, (space) THOUS. on scroll, MOFFAT & CO / D C within; letters identical in style to die Y but not as large. Ford coll ex Nagy estate.

CLASS FIVE. ASSAY BARS. All *

TG Remarks

119 7b- 900/83.71/1358 // 2/4½ OZS tablet b less rusted than usual. Standard called for is 2160 grains; wt. 2159.60, which is surely close enough. The 1358 is a serial number.

141 girka- 1352/999/840 // the 1352 obviously serial number, 999 fineness, 840 weight in grains.

127 si-a 900/900//D 7.26 C/71-15 2 the 71 overlapping. One of the 900 's appears to be a serial number, the other fineness. The 7-15, first mispunched 1-15, is probably a date July 15, 1853; the 2 probably means second bar from this particular melt.

~~H -a 999~~ 9999/2D40.00 // 9999/2 the 2's both sidewise. Exceptional fineness for an assay bar but presence of bullion value and serial number exclude it from class of proofing pieces.

120 a- 35.80D // 1072/807 THOU/134 on edge an additional H stamp at place of a test mark.

CLASS SIX. PROOFING PIECES. No weight or value; fineness 998 to 9998; all *, and considered unimportant.

I -r small lump, 364⅛ gr.
J ra 999// wt. 430 gr. lowest line of a off the piece.
K rhia-i //999
L ~~rb-~~ 999/50 // the b tablet severely rusted; wt 1174.20 gr.
M ~~rb-~~ 999/50 //

N rib 1 11/999 // wt. 536.20 gr. Leo A. Young. Declared a forgery by EPN on the stupid grounds that this b puncheon must have been cut down from a third copy die from a group X reverse; this needs no further refutation now in view of preceding arguments.

O rc- 999 // wt. 18.921 grams or 291.70 grains

P er- 999 3½2 // the 999 sidewise

Q b- 9998 // wt. 503 gr., lowest line of b off the piece

128 s-a 998 // 2-17-53 rev. numerals undoubtedly a date.

R si-a 999 // 999 represented only by a rubbing, the piece seen by Franklin in possession of the bank president in the town where the * coins were first found.

CLASS SEVEN. VALIDATIONS.

USAOG 129 or TG 132. dies 8ms-Zb 38.00 / 2/1/10/888 i.e. SHULTZ & CO ASSAYERS above the 8 obv., denomination incused in proper place; 2 oz 1 dwt 10 grs 888 fine. Mutilated by a counterstamp from the b tablet. Explained below."

The above, some 65 pieces, involve a linkage group including 8 obvs., 9 revs. and 13 tablets or logotypes or puncheons of various sizes which required parts of four different alphabets to make de novo in addition to access to original hubs.

43. It is now necessary to consider the significance of this extraordinary group of unpublished pieces. To do so we have to understand, if possible, the purpose behind such pieces, specifically why they are organized into the seven classes above mentioned. The classification here attempted is partly from analogy with other similar issues by other pioneer coining firms, partly from (for the sake of argument) accepting the group as possibly genuine; it will be seen that the wealth of interconnections is far in excess of anything that a forger might have been able to invent.

44. Humbert/USAOG operations are historically known to have involved the manufacture of (A) coins, officially styled "ingots", originally confined to octagonal fifties (and in 1851, also, octagonal hundreds) and in a few instances oblong hundreds and $200, $500 and $1000 denominations. The design on the latter is not recorded. (B) Assay bars were made from clients' bullion, sometimes in even denominations but this was exceptional. Usually they were in odd

denominations, according to the bullion value (less standard assay charges) of the deposits. These are analogous to the assay bars issued by F.D.Kohler, which may have circulated at a juncture when more convenient circulatimng media were difficult to come by or unevailable. They are alsc analogous to assay bars issued by James King of William, Argienti & Co., Shultz & Co. (unlocated), Moffat & Co. (from $9.43 to $264, most commonly $16 and then intended for circulation), Blake & Agnell, and various other firms. Assay bars normally are distinguished from ingots intended to circulate by having serial numbers. Weights are normally incused along with fineness, and if dies or puncheons were used (by any assayer) there was space left deliberately for incusing weight and fineness. (C) Proofing pieces. These were small lumps or bars of gold refined to as near 9999 as possible; they were used as comparison standard of pure gold in assaying operations. The assayer or his assistant would take a small clipping or shaving (of recorded weight) from a proofing piece and subject it to the same chemical operations (separately) as were being performed on the ore sample brought in for assay, and the comparative results would give a reliable basis for estimating fineness of the latter. Alternatively, if a sample of gold of known lower fineness such as 900 is needed for chemical comparison with an ore sample, a proofing piece would be scraped or shaved to provide fine gold of known weight, combined proportionately with silver to yield gold of the desired fineness, melted, and the appropriate comparisons made. Or in a coinage operation, if a melt had to be brought up to a desired fineness such as 884 or900, a known weight of proofing pieces would be added for the purpose. Proofing pieces normally have no weight stamped, no denomination but always a fineness stated as 998 or higher. Quite a number of them have turned up, in different sizes, ordinarily showing

(a) assayer's firm name or position, (b) fineness incused. Them reason for this, obviously, was identification--so that they would not be confused with ore samples. Serial numbers or the like do not occur; the 1-11 may represent a serial number of some kind or a date Jan. 11, 1853. The 3½ on obverse of one is of unknown significance unless indeed the fineness was stated as 9993½ which is not at all impossible. Proofing pieces are only borderline numismatica and technically represent an adjunct to assaying (and possibly coining) operations; their primary interest to numismatists, aside from the historical tie-in, is found in their bearing official stamps. (D) Validations. The U.S.Treasury Dept. validated assay bars of private firms, ca. 1862-68, and probably at other times. Validation consists in weighing a bar brought in for the purpose, shaving off a tiny sample and assaying it to verify the stated fineness, then stamping an official logotype or puncheon onto the bar as evidence of this certification of correctness of stated weight and fineness. The Argienti & Co. ingot here exhibited represents a typical instance of validation, an 1851 ingot being brought in to verify that it was genuine and that its stated weight was correct. This bar shows that a tiny test shaving was taken off one edge, after which it was validated by receiving repeated stampings from tablets s and b (opposite sides)--these restampings constituting actual mutilation.

45. Given the above, the preceding inventory of * pieces can fall naturally into the seven categories listed. (1) Coins--self-explanatory; pieces intended for circulation, the three anomalies at the end fitting better into that classification than any other: even denomination refledting convenience for a circulating medium, no serial numbers, fineness ordinarily 880, 884, 887 (early) or 900 (later standard under government pressure). (2) Essai coin ingots: even denomination, no serial numbers, of unusual format or deviant design

though round or octagonal, reflecting proposals or suggestions for designs or formats. (3) Experimental pieces representing a variety of suggestions; the historical background for these will be found in the next section. (4) Trial pieces--in metals other than gold. (5) Assay bars, explained above. (6) Proofing pieces, explained above. (7) Validations, explained above.

46. At this juncture let us consider the possibility that any one piece, specifically V-2 (the one under controversy), was a counterfeit made from copy dies. This assumption, made without questioning and sustained continuously by Newman, has implications as to the purpose of the * operation, and has still further implications as to the materials available to *--i.e. to Franklin, as he is the target for Newman's questioning at the original 1966 hearing. If the A1 reverse is a copy die, then either the other dies are all copy dies and original forgeries, the latter applying to those such as obvs. 5, 6, 7, 8, revs. W, X, Y, Z and all the tablets save a through --or else the * source discovered a group of old dies and punches, combining them in various ways with some copy dies. Still another alternative is that all these pieces were made by the * source from genuine old dies. All these possibilities must be considered without reference to prejudice in either direction.

47. If the V-2 coin is from copy dies, then the method of copying and the prototypes must be ascertained. Eric's argument involves the assumption that either casting or hubbing was done (in one place he says one, in another the other) to produce the copy dies: four obverses and at least four, possibly five copy reverses, together with at least five four-line tablets. I shall summarize his argument and then consider its implications in detail.

48. Eric believes that the following steps were taken: (a) A

wax, latex or plastic mold or negative was made from neither side of a normal Group X USAOG $20 showing the frame dent and the dent on I of UNITED, by impressing the coin onto thick disks of the appropriate substance. (b) These molds were repeatedly dipped into a ceramic slurry, the whole thing being subsequently baked to harden the thick ceramic layer and to melt, burn off or vaporize the mold --i.e. the traditional cire-perdue or lost-wax method. This leaves a ceramic hub or positive, in relief like the original coin, and supposedly (1) hard enough to accommodate following operations without breakage, (2) fine enough in detail to produce copy dies without loss of sharpness even in places like the engine turning on rev. and the 900 THOUS on obv. Miraculously, there is no shrinkage and no size discrepancy in the copy dies made from this positive, despite the requirement of a separating medium. Here we immediately reach improbability, though Newman maintained in his questioning of Franklin that PF had access to extremely sophisticated equipment. (If so, why did he have a New York City jeweler make the electrotype copies of the overstruck peso and the CSA half dollar? These are not remotely deceptive.) (c) The ceramic hub was used as a template for casting centrifugally a working die of molten steel or some other molten metal, which cools and is afterwards hardened. Miraculously, there is no granularity, no porosity and no shrinkage; and the ceramic hub suffers no deterioration. Though hard enough for that purpose, it is still easily enough worked to make possible the removal of the word TWENTY for creation of three working obverses; and for successive alterations for partial removal of the circumferential breaks. (d) The obverse and one reverse (group VII, die D1) so made are used for striking Group VII twenties, not prooflike, on traditional cold-rolled blanks, using a 170-reed collar. (e) Afterwards, the same ceramic

hub, supposedly still in perfect condition, was retooled with a narrow-edged graver or dentist's drill to remove the chip and the remainder of the circumferential breaks except for the small lump between S and L; in this state it was used to make at least five more copy dies, which were cut down at frame line to make the tablets used for assay bars and proofing pieces. (f) At this juncture, the hub was still in perfect condition, having suffered no crazing, cracking, chipping nor other deterioration; it was then again retooled to remove the lump between S and L and the other chip between TE, after which it was used to make one or more additional copy dies (group V). These were brilliantly polished, and the group V coins struck, at least one supposedly on cast blanks. The nick on N of group VII and the other nick on N of group VII were both suffered in the process of polishing or hand-finishing these working dies. The cast blanks of group V were made in different alloys containing from zero to 30 parts copper per thousand, in addition to the variable amounts of silver. (g) The working dies and tablet puncheons are used more or less randomly to create weird pieces purporting to be assay bars, proofing pieces and experimental ingots of various kinds. (h) From some source unknown a group of 19th century alphabets is obtained and used for creating dies and tablet puncheons of original designs, these in turn being used for making additional stamps on the purported assay bars, proofing pieces, etc. Alternatively, (?) the copy die of group VII was used for raising a hub in a screwpress, from which the other copy dies were made. (i) Since the two A.HUMBERT U.S.ASSAYER tablets, the W reverse and the SHULTZ & CO ASSAYER puncheon are all punch-linked with each other and with obverses 5, 6 and 7, all must have come from the same source, therefore the large letters on revs. W and Z and obv. 8 must also have come from the same source, therefore the ARGIENTI & Co, ingot and the overstruck cent (from the unrusted die state of the reverse die

now in Ford's possession) are also falsely made by the maker of the * material.

49. At which point an unbiased observer will reflect and say something like "Oh, come off it!" In the first place, this account of Eric's reasoning--specious enough and impressive enough to convince the unwary--requires that the group V coins have been all made after the group VII's, which is contrary to the evidence of increasing die rust on the obverse die they share. In the second place, the very condition of the reverse die W makes it improbable to the point of absurdity that this could have been all accomplished within the space of roughly one year--even assuming that the several pounds of California gold could have been obtained, in varying alloys, together with the very considerable amount of equipment including the four alphabets.

50. The overstruck cent mules the obverse of the controversial twenties, in something less than the most rusted state known, with the unrusted state of reverse W. This cent shows a thick patina of obvious age. Under 75 diameters it does not look new or artificial; it does not yield to orginary tests, though I have not wished to subject it to boiling for an hour in soda. As a known expert on large cents I can testify that it is old patina and not new recoloring. This cent was a gift from Franklin to Ford on July 27, 1959.

51. Reverse W was bought by Ford at the 1958 ANA convention from Franklin, the overstruck cent not then being known. At the time it was rusted all over and corroded so badly as to be unreadable. Ford kept it at his bourse table and soaked it there for three days in Hoppe's Gun Solvent cleaning solution, after which time I was able to read it. To the present day it is still severely rusted on all surfaces, enough so to preclude making any impressions from it; the rust looks old, and when the die was brought in there was no partic-

ular reason to doubt its being exactly what it claimed to be. Neither Ford nor I at any time doubted its genuineness, though we both remarked at the time on the unusual crudity of execution and the fact that no impressions were known from it. The die never afterwards left Ford's possession. I examined it at his home in July 1967 during the period when I examined the photographs, notes, and * pieces which he made available, representing everything he had ever seen and much more than he had ever personally handled. I myself discovered the successive replacement of letters enabling a sequence to be set up; this was thoroughly consistent with an engraver's practice in discarding chipped punches and having replacements made. I also discovered the punch linkage between the W reverse and obvs. 5-6-7-8, revs. Z and tablets g i j k m r and s.

52. The above establishes that the cent was made much earlier than 1958/9. Either Franklin (or his source) had discovered a way of quickly producing the genuine patina of age on copper or else the cent overstrike is genuine. If we have to assume that the cent overstrike is false, then we have to assume in turn that Franklin or his source knew how to patinate copper quickly and how to make a new die from old punches and then how to rust it thoroughly and deeply in a very short time, turning over the die in 1958 and the cent a year later. If so, why was the die very cheap and the cent a gift? The cent is important enough to be a quite valuable numismatic item if genuine; more important, I must add, than Ford ever realized until he saw me become excited over its implications in July 1967, eight years almost to the day after he had gotten it. He had never before even bothered to photograph it. Also we may ask why the die was made if no gold, silver or lead impressions were made from it? They would easily have been brought to light in 1958 or later, without suspicion at the time, and if in 1959 and unrusted

they would have been valuable confirmation of the die and vice versa.

53. We now come to the Argienti & Co. ingot, which is the most valuable single piece of evidence. Whoever made this ingot owned or had accessm to the same alphabets used to make obvs. 5 through 7, rev. W, andthe aforesaid tablets, and the genuineness of those stands or falls with the genuineness of the ingot. I shall show that the punches were made by Albert Küner, a fact which has extremely important implications in the question of genuineness of the whole group of dies.

54. Before going into this line of argument, let us consider the alphabets. Three alphabets are represented on this group of dies and tablets together with part of a fourth. (1) The lower-case letters are found only on the Argienti ingot. (2) The large caps are found on obv. 8, rev. Z, and rev. W. (3) The small caps occur first on the rev. W,showing a badly defective N; then,without other change than replacement of the N, on the mentioned tablets except for that denominated s. (4) On tablet s the E, R, S, U and Y, all having shown varying amounts of chipping on the others, have been replaced by others in somewhat different detail but similar style--all obviously mid 19th century. Note the logical sequence. The Argienti ingot bears a SHULTZ & CO ASSAYER logo at top, from earlier state of the small caps; the (1853) A.HUMBERT U.S.ASSAYER tablet s, overstruck (opposite a four-line tablet cut down from a USAOG twenty die) on the ARGIENTI & CO ingot, shows the partly replaced alphabet. This is all exactly as it would have been expected to be in genuine pieces. Were the alphabets modern copies, the replacement letters would most likely not have been necessary for the brief operation represented by making less than a dozen dies, and were they simultaneously available, only the most extreme care would have prevented mixing up of the two alphabets or parts of

alphabets.

55. Adams & on territorial gold, part III, pp. 75-6 (1912), discussing Shultz & Co. (Judge G.W.Shultz & ~~Thomas~~ Wm. Thompson Garratt), quotes Garratt's interview from Builders of a Great City, S.F.Journal of Commerce Publishing Co., S.F., 1891, vol. I, to the effect that Albert Küner engraved dies for many private coiners, Shultz & Garratt doing the machinework on these dies; and that in particular Shultz & Co began "coining" for Burgoyne & Co. and Argienti & Co. It is only to be expected, then, that some identification of Shultz & Co would be found on any ingot of either of those firms. It is no surprise, then, that the Shultz logotype would appear on the Argienti & Co ingot now surviving. This itself is a find of considerable importance. But if the ingot itself was a forgery (something never claimed or suspected by anyone, but implied if and only if the alphabets are modern creations or modern uses of old punches), then the forger would have had only a monetary purpose in creating it. Extreme skill and access to authentic old equipment including parts of four mid 19' century alphabets were necessary to create the Argienti ingot, which incidentally weighs out correctly and which is in obvious California gold. It would have been very much to the forger's advantage to leave the thing alone and to make at least one or two more from the dies. Nevertheless, not only is there only the one ingot, it is mutilated to such an extent (by the validating counterstamps) as to cut its resale value by more than half. Harvey Stack once said that those counterstamps were worth minus a couple of thousand dollars.

56. And as if that were not enough, why did not the forger come up in 1958 with one of more highly salable Shultz & Co ingots? These could have been readily created using only the available punches and the extant logotype m, value, weight, fineness and date

suitably incused from the same punches used on the various assay bars already known. Two Shultz & Co ingots, or even one, might have paid for the whole operation.

57. We now have to consider if the maker of the Argienti & Co ingot could have been simultaneously so clever and so stupid as to kill the value of his own production. Numismatically the use of the counterstamps would have required stupidity as it would have served only to kill the value of the ingot, placed where the stamps were placed. Any coin collector would have placed the counterstamps somewhere that they would not interfere with the ARGIENTI firm name. On the other hand, in 1853 Argienti ingots were commonplace, the numismatic issue nonexistent, and a validation would be suitable no matter where the stamps were put. Humbert or his assistant would have treated the operation as something entirely routine.

58. In the absence of contrary evidence I am bound to treat the Argienti ingot as genuine, on much the same grounds as I am bound to treat the cent overstrike as authentic. Mutilation of the Argienti ingot, whetherm forged or genuine, would be not only unintelligible, it would have been incredibly prodigious effort purposelessly ruined to nobody's advantage and especially to the disadvantage of the forger himself--as the ingot sold for maybe one fifth of what it would have brought without the extra Humbert stamps placed where they were.

59. If the Argienti ingot is genuine, then it mcan be immediately concluded that the letter punches used on it were owned by Albert Küner, as Küner made the dies. This immediately enables asvription of reverse W to Küner because the same large capitals recur there. If Küner made reverse W, then the small caps were part of his stock of letter punches, gradually chipping away and being replaced by others--first the N, then the

E, R, S, U and Y, as those letters chipped too much for further use.

60. This means that we can correctly ascribe the tablets g through s to Küner. This means also that either the owner of the Küner alphabets made the obverses 5, 6, and 7 or that Küner himself made those three dies together with reverse W.

61. But Küner's equipment was destroyed by fire prior to 1911, i.e. in the 1906 SF earthquake + fire according to Adams's sketch of his biography in the back of his book on pioneer gold. It follows, then, that the punches must have been destroyed at that time; more specifically, even if the punches had survived as late as that, let alone to 1958, only the replaced alphabet in its more recent state (with the new E, R, S, U and Y) would have survived; the earlier versions would not have been available to a modern forger. The only alternative then, is that the puncheons, tablets and dies 5, 6, 7 and W are actually Küner's work, therefore that they are mid nineteenth century. The style of lettering in small caps is the same on these as on the Shultz, Dunbar, Moffat &c dies.

62. This at once establishes the genuineness of obvs. 5, 6 and 7 and confirms the genuineness of rev. W. If these dies were genuine how would they have survived unrusted until 1958? Note particularly that reverse W was so severely rusted as to be unreadable until after it had been soaked for three days in solvent and that even this treatment has not removed enough rust from it to enable a readable wax or plaster impression to be made.

63. If obvs. 5, 6 and 7 are genuine and used during the period because unrusted, this immediately validates as genuine the entire group of mulings die-linked with them or with dies with which they were muled. We cannot release any of them from this group as the previous catalogue shows.

64. If rev. W is genuine and the cent overstrike was made while it was unrusted, i.e. in the mid nineteenth century, that automatically validates obverse 1 (III-7, the controversial eagle $20 obv.) and the dies muled with it. This die is found in more

rusted condition on several gold pieces (groups VII, VIII and IX). Microscopic examination of the overstrike leaves no doubt of the fact. It would follow, then, that the overstrike was an 1852 or early '53 product (the rev. W is dated 1852), and the gold pieces were made later.

65. We have earlier established that whoever made the * coins had access to rolling mills and blanking presses--and striking presses--comparable to those of the original &USAOG; that he had access to a considerable amount of California gold; that he had access to a group of Albert Küner alphabets and dies; and that he had sufficient knowledge of both minting technology and history (if he was working in recent years), or at least of minting technology (if he was workingin the 19th century), to produce items which are convincing enough to refute the most sophisticated arguments yet brought to bear on them.

66. If this man worked in modern years, he must have had access to a cache of Küner punches which somehow managed to estape the fire when nothing else of Küner's did, fifty years or more before; and he must have known logically how to replace punches more chipped with punches less chipped; and he must have exercised ingenuity of an extreme order in making puncheons and tablets, enough so to involve technological processes far in advance of anything Newman could come up with as a method for creating forgeries, processes which must have been therefore substantially identical to those used in 1851-53. (Casting steel dies from ceramic hubs won't work. The letter from Eva Adams alluding to this method and saying that the results are unsatisfactory has been seen by me.) Yet this same man must have been stupid enough to ruin his own handiwork. It won't wash, gentlemen.

67. There is a principle in philosophy known as Occam's razor.

One does not multiply ad hoc explanations beyond necessity; confronted with two/alternative explanations of a phenomenon, one chooses the 'simplest', viz. that with the least number of ad hoc assumptions. The simplest explanation this time involves none whatever--that the dies were in fact Küner's work, on behalf of Humbert, Shultz, Argienti & Co., and that they were made in 1851-53 and used as they purported to be. The alternative, that the entire * group is false, involves these ad hoc assumptions: (1) the forger was extremely astute to find and make and use all this equipment, (2) he was extremely lucky to find original Küner punches, (3) he was also extremely stupid to ruin his own work, make obscure material and fail to make obviously salable material which would have been very simple to produce by anyone owning the logotypes and punches, (4) he must have had access to a considerable quantity of California gold, (5) he must have had access to accurate smelting equipment to produce various alloys in exact finenesses, (6) he must have had access to technology far in advance of anything known to Newman or the Philadelphia Mint, (7) he must have had unlimited time and funds to spend on this hobby, as monetary gain to him was very small compared to what it might have been.

68. One minor detail not yet dealt with. Measurements taken on some coins of groups V and VII shows that their thickness is minutely greater than that on group X (non-*) and that the diameter is also minutely greater. Greater diameter means only a minutely larger collar. Greater thickness is consistent with an alloy having more silver than the usual standard; silver is less dense than gold, thus having more volume for a given weight. This is not at all a suspicious circumstance. The size difference is entirely in the borders; die sizes are not different at all. I have seen photographic transparencies made from group X and from * coins and there is no

size discrepancy whatever. In one instance there is minor misfit owing to slight double striking on the * coin, but in any given area whatever there is no size discrepancy at all. None. The transparency can be made to fit its partner, square mm to square mm. If the * dies were hubbed or transferred copies of copies, they would have lost some detail; if they were made by something like the processes Newman described, they would certainly have shown some porosity and some shrinkage—especially if casting were done at any stage. Cast steel shrinks appreciably and unevenly, according to the Director of the Mint and common metallurgical knowledge. This disposes of Newman's argument altogether. If the dies were hubbed copies of copies made from a regular USAOG twenty, why did they not lose detail? and why is there no loss of detail even microscopically? The detail is even microscopically the same in all areas of engine turning, as I have verified; and this engine turning was a deliberate anticounterfeiting device. I have seen a lead cast of a USAOG twenty, copied from a decagonal lead trialpiece which was in the 1958 ANA Convention auction; this cast shows bubble marks and shrinkage. I have seen 1943 copper cents struck from hubbed dies; they always show some loss of detail and minor size discrepancy. Neither condition obtains in the * coins. The technology available for this purpose is far in advance of anything known to Newman, if indeed it exists at all.

69. The only alternative, gentlemen, is to exonerate the whole group as genuine. If the others are genuine, then V-2, the twenty at issue (Garland's) is also genuine. We now reach the question of whether it is a proof. Comparison of it with the presumably Philadelphia Mint proof (EPN 12, USAOG 123) is useless. Instead, it should be compared with the proofs known to have been made by Humbert: the 1852/1 $20 ex Humbert, Zabriskie and the ten in JHU. Surfaces on these are more like each other and like the group V coins than like the EPN 12, tending to corroborate the original

claim.

PART THREE. HISTORICAL RECONSTRUCTION.

70. Humbert began work as U.S. Assayer of Gold in 1851, Moffat & Co.'s advertisement in the Daily Alta California for 1/29/51 providing a terminus. Adams, p.18, says that AH arrived in SF on Jan. 30 or 31 and on the latter day stamped the first octagonal $50 ingot; by 2/14 he had made several minor varieties of this with lettered edges and some octagonal $100 and $200 ingots followed up briefly by rectangular ingots of other denominations. Note that these all bore the legend UNITED STATES OF AMERICA. T.Butler King, collector of customs for the SF port was authorized to accept these ingots in tariff payments--testifying to their official status. Legal tender status was not officially granted (per letter of MXG.N.Eckert, mint director, 4/23/51, cited by Adams) as this would have subjected Humbert to the rigors of the assay commission in Philadelphia. For the identical reason branch mint status was not officially granted. Nevertheless AH worked under official contract. As of 2/15/52 he received the contract to issue $10 and $20 "ingots" (a term once again designed to evade the rigors of the assay commission); at the same time Moffat & Co. reorganized under Curtis, Perry & Ward, buying out Moffat's interest; their priginal subcontract with the treasury remained in force, their minting equipment, adjoined to what AH had brought from the East (including at least one Morgan & Orr press --the same makers as those for the Philadelphia Mint) served for USAOG operations.

71. For cutting local dies, until such time as more hubs would arrive from Philadelphia, Humbert of necessity turned to Küner, who had made dies for Moffat in 1849. This procedure was expensive and the dies would have to be used in as many contexts as possible--hence such experiments as obvs. 5, 6, 7, which could be used for

twenties or for assay bars according to what denomination could be incused on them, with no more work than had formerly been used for making fifties. Millions of $50 slugs weremade in 1852, and some 24,024 also in 1853; most of these from the regular 1852 dies, some possibly from the modified twenty obverses. The principal output from then on was twenties from the hubs shipped from the parent mint, until the government bought out the USAOG Dec. 14, 1853 for conversion into an official mint--the new zinc assaying process having then been surreptitiously put into use.

72. During the troubled period late in 1852 and early in 1853 the fifties were refused at customhouse and various experiments intended to lead to an acceptable 900 fine coinage were going on; the * material appears to reflect these experiments, completed prior to arrival of 1853 twenty hubs at the beginning of the year or just at the end of 1852; this arrival was presumably delayed owing to congressional opposition to ingots. The round and oblong ingots with obvs. 5,6, 7 appear to belong to this period; the tablet s, with the replaced letters, to a slightly later one; the logotypes were in use concurrently for various purposes suitable to any assayer. Shipment of hubs from Philadelphia would have been the method of choice rather than shipment of working dies inasmuch as the cost, and risk of seizure by private parties, would have been far greater with the latter, and the USAOG certainly had the equipment for sinking dies from these hubs if they had presses powerful enough to strike fifties. This situation is not matched by anything in the mint back east; many dies were completely hubbed by then, including all nondate sides of all denominations, and all date sides were completely hubbed save for dates, but matrices implied an unorthodox method of multiplying hubs for a very special situation not extant a t Philadelphia though long since in use at the London mint. In short, the authorities had reason to think that the

issue of twenties would be unprecedentedly large from USAOG, in excess of anything previous; and that the issue would continue perhaps indefinitely--until some new parting method would be discoverable (as in fact McCulloh's zinc method later did get into unacknowledged use), making unnecessary the extremely difficult and mostly shipment of parting acid overland or via Cape Horn, or pending the establishment of acid factories in the SF area.

73. The two round $50 dies and the blank denominationless die were created mechanically at USAOG by raising a new transfer hub or positive from a working obv. die in the heaviest press--this being done to save the existing obv. hub from permanent malteration. As the new hub was in relief, softening and scraping off the TWENTY followed easily, after which the hub (having received an accidental dent on border at M) was rehardened and replaced in the press, being used to sink three working dies. One of these remained without denomination, the idea being to incuse different denominations as needed onto the ingots stamped with it; the other two received 50 with and without double punching on cipher, making it unnecessary to go to the added delay and expense of having Küner make dies locally. The double border on two $50 obvs. is easily explained; oversize die blanks were chosen and a border of suitable size mechanically lathe-cut into them individually. On the piefort $20-size impressions naturally this extra border would not show. The blank-denomination die, being intended for ingots of various sizes, needed no extra border and its die blank was accordingly of $20 size. The target reverses without lettering were probably cut in USAOG by lathe rather than by Küner. Other items have already been explained without difficulty.

74. If any questions have remained unanswered through oversight I am always available for inquiry at the address on page one.